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NATIONAL PETROLEUM NEWS

Refining Technology EDITION

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JANUARY 26, 1938

Shorter Days
LONGER PROFITS
Here is one good way to bridge the gap between June and January profits—INSTALL TOKHEIM STATIONLITER PUMPS. January days are shorter, but STATIONLITERS make profits longer because they keep working far into the night. Operators who had the night-time blues a few short months ago are whistling again since STATIONLITERS came into their stations. You can do as much for yourself. Call your Tokheim man today!
QUALITY
TOKHEIM
THE BETTER BUY
COMPARE THE VALUE
STATIONLITER Money Computing Model shown. Also available as Clock Dial pump.
SUPER BRAND
TOKHEIM OIL TANK & PUMP CO.
DESIGNERS AND BUILDERS OF SUPERIOR EQUIPMENT
FORT WAYNE
FOR 36 YEARS
INDIANA

LAST MINUTE
OIL NEWS SECTION

News By Teletype From 4 News Bureaus

National Petroleum News

News From Oil Industry Everywhere

VOLUME 30 WEDNESDAY, JANUARY 26, 1938 NUMBER 4

'GUILTY' IS MADISON VERDICT; APPEALS PLANNED

Orders Sunday Shutdown in Texas Fields

BULLETIN

TULSA, Jan. 25.—Preliminary reports on compliance Jan. 23 with the Sunday shutdown order of Texas Jan. 23 indicated that many wells were open, but that production will be reduced one-seventh over the week. Purchasing companies are under orders to deduct two days production from January.

* * *

By LAWRENCE E. SMITH

N. P. N. News Bureau

TULSA, Jan. 22.—Statewide application of the Sunday shutdown method of dealing with overproduction, considered by the Texas Railroad Commission for weeks, was ordered Jan. 20, three days after the commission held its monthly hearing on proration.

This, it is believed, starts a general trend in the reduction of crude oil output in the southwest. State regulatory agencies in Oklahoma and Texas are expected to follow with orders reducing the allowable output in their fields.

The order of the Texas commission directs the complete shutting in of all oil fields in the state for six consecutive Sundays, starting at once, Jan. 23. Producing wells are to be shut in at 7 a.m. Sunday morning and put back on production 24 hours later.

Some latitude is granted in the order to wells necessary to fuel supply for communities, as was the case in the East Texas shutdown which lasted four Sundays starting Nov. 21, and to wells whose physical condition is such that a complete stoppage of production would be injurious.

Such wells, however, must be restricted by one-seventh of their allowable production and those kept open for fuel supply must be closed on another day following Sunday. Gasoline plants may arrange with op-

(Continued on page 20)

Oil Helped Uncle Sam In 1937 To Extent of Quarter Billion

WASHINGTON, Jan. 24. — Federal receipts from the four major direct taxes on petroleum in 1937 amounted to $249,978,607.65, compared with $226,590,359.48 in 1936, according to the Internal Revenue Bureau's figures.

The gasoline tax netted revenue of $203,025,379.73 in 1937, as against $186,321,448.52 in the previous year. The tax on lubricating oils brought in $33,681,590.41, compared with 1936 receipts of $28,985,547.05.

Revenue in 1937 from the tax on transportation by pipeline amounted to $12,304,202.71, and in 1936 this levy brought Uncle Sam $10,423,607.70. From the various "Ickes taxes" on production and processing, the 1937 "take" was $967,434.80, compared with $859,758.21 in 1936.

Platt Suggests Plans for Oil's Future Developed from Madison Case

By WARREN C. PLATT, Editor

And now for the future.

With the verdict in the anti-trust case at Madison, Wis., at last rendered, the restraint on free discussion of some of the oil industry's most important problems is removed.

Under general court procedure the whole industry—everyone—was forbidden to discuss any subject or material involved in the pending lawsuit. In addition the defendants on whom improvements in oil industry procedure largely rest, did not dare indulge in any discussions or talk of changes in their methods lest that be used against them, a real fear in view of the government's conduct in the case.

For nearly two years now, since the government started its investigation in earnest, the industry has been "frozen" as to its conduct and discussion on marketing policies.

The most pressing problem is that of price relationship between jobber and refiner, which goes to the root of the industry's marketing troubles. The Madison case showed clearly how the entire oil industry is dependent on the tank car markets. All the retail markets of the vast middle west are based on the sales of a few small Independent refiners to a comparatively few hundred, at most, Independent jobbers who sell under their own private brands. They alone make the much talked of tank car markets.

Abdicated Rights

The large major oil companies and the semi-majors and those 3750 mid-western oil jobbers who handle those much advertised brands, it was clearly brought out in the evidence, had each

(Continued on page 15)

30 Individuals And 16 Companies Convicted

By E. L. BARRINGER

N. P. N. News Bureau

MADISON, Jan. 25. — Defendants today began their attempt to set aside the verdict of guilty returned by the jury Jan. 23 in the oil conspiracy trial.

Motions to set aside the verdict, for a new retrial, and for arrest of judgment were filed for a number of the defendants late today by defense counsel. However, it is not expected that these motions will be argued for at least 30 days, while court and counsel recuperate from the strain of one of the longest cases on record.

Federal Judge Patrick T. Stone after the verdict was read Saturday granted the defense the right to file the motions.

A conference of defense counsel followed the verdict to map immediate plans. The first effort is believed to be directed towards setting aside the 46 verdicts, eventually leading to the customary appeal to higher courts.

Before final arguments began last week the court announced the record would show that motions for directed verdicts had been filed on behalf of all defendants with arguments to be heard later.

Thirty-six individuals were defendants when this announcement was made. The six granted directed verdicts, announced Thursday and Friday, were C. M. Boggs, Western Petroleum Refiners Assn. president; L. T. Cramer, Continental Oil Co.; H. A. Gardner and F. L. Koopman, Phillips Petroleum Co.; Dewey K. Chamberlain, Pure Oil Co.; and Thomas Fitzgerald, Mid-Continent Petroleum Corp.

Jury deliberations required about nine hours on Jan. 21 and 22. The announcement of the

(Continued on page 12)

Illinois Jobbers Protest Increase in Freight Rates

N. P. N. News Bureau

CHICAGO, Jan. 24. — Any increase in railroad freight rates on petroleum products will tend to lessen the margin on which the independent marketers of the country carry on their operations, the Illinois Petroleum Marketers Assn. has stated to the Interstate Commerce Commission in a plea against the proposed 15 per cent advance in rates sought by the railroads.

"Any increase in railroad freight rates and a subsequent increase in the profits of the larger companies operating pipelines, permitting them to absorb greater losses in the marketing division of their operations, would tend to further lessen the marginal spread of Independent jobbers and lead to their ultimate oblivion as a competitive factor of the major integrated companies," stated G. S. Primm, secretary of the Illinois marketers association.

His brief was submitted on behalf of more than 900 independent oil jobbers and marketers operating in that state. On Jan. 14 a similar plea to the commerce commission on behalf of 750 independent marketers in Iowa was submitted by A. C. Gienapp, secretary of the Iowa Independent Oil Jobbers' Assn.

Primm pointed out that today it is the independent refiner and jobber who is handling the largest movement of refined petroleum products by rail transportation. Any further increase in rates will encourage expansion of both barge and truck transportation of petroleum products by the independents, he told the commission. It can also be foreseen that, with higher rates, independent refiners will find it more advantageous to build their own gasoline pipelines to points where they can serve their customers economically, he said. The text of his letter to the commission reads as follows:

Text of Plea

"In the interest of more than 900 independent oil marketers of Illinois, we respectfully submit to you their position in opposing any increase in freight rates on shipments of petroleum products.

"Any additional freight rate increase will be a blow to independent jobbers of this state. The majority of petroleum products handled by them are shipped by rail, while their major competitors move the bulk of their material through pipelines. These larger companies, who in most cases own and operate their own pipelines, enjoy a lower transportation rate and at a profit to themselves, whereas the jobbers' freight rate charges must necessarily be added to the price of the products they sell. Many independent jobbers handle the products of major integrated companies moved through pipelines and, even though a portion of the haul is by rail from a pipeline terminal, the supplying company has the advantage of equalized freight rates from the point of origin.

Too, the larger companies who own and operate their own pipelines are accepted as the market-makers of tank car, tank wagon, and retail prices and it is an established fact that they take advantage of their lower transportation costs in fixing resale prices; hence, any increase in freight rates on petroleum products not only gives them the advantage of increased profits from their pipeline operations but as well makes it possible for them to fix resale prices to the detriment of their small independent competitors.

Work On Narrow Spread

"For some time Independent oil jobbers have been operating on a smaller marginal spread between their tank car cost and their selling price than they have for a good many years, while the earnings of their larger competitors have been steadily increasing. It is a well known fact within the industry that the major integrated oil companies, whose operations include that of crude production, refining, transportation and marketing, have in late years absorbed the losses in the marketing division of their business, with their excessive profits in the other divisions of ther business; chiefly that of their pipeline operations.

"It is evident, therefore, that any increase in railroad freight rates, and a subsequent increase in the profits of the larger companies operating pipelines, permitting them to absorb greater losses in the marketing division of their operations would tend to further lessen the marginal spread of Independent jobbers and lead to their ultimate oblivion as a competitive factor of the major integrated companies.

"It may also be stated that independent jobbers fully realizing the inequality of their transportation rates as compared with those of their major competitors are rapidly finding ways and means of lowering those rates. The railroads of the country for the past number of years have been gradually losing petroleum tonnage not only to the pipeline carriers but as well to river barge and truck transport.

Encourage Trucking

"Any further increase in freight rates will encourage expansion of both barge and truck transport of petroleum products and it can be foreseen that independent refiners will find it advantageous to build their own gasoline pipelines to points where they can serve their customers economically.

"While the railroads of the country may be in dire need of additional revenue, which increased freight rates would bring them, yet it is inconceivable that they would want to further increase the rates on petroleum products to a point that would jeopardize their present tonnage hauls. Incidentally, it is the independent refiner and jobber who today handles the largest movement of refined petroleum products by rail transportation.

"It cannot be expected, of course, that the major integrated companies who operate pipelines will oppose any increase in freight rates; hence, it is solely the problem of independent refiners and independent jobbers to protect their own interest in opposing any increase in freight rates.

"In behalf of more than 900 independent oil jobbers of Illinois, we respectfully ask your honorable body to consider seriously the plight of the independent branch of the petroleum industry in considering the plea of the railroads for an increase in freight rates on petroleum products."

Saturday Mornings in January Peak For Service Calls, AAA Reports

N. P. N. News Bureau

WASHINGTON, Jan. 23. — Service calls from halted motorists are more likely to be received between 9 and 10 a.m. on a cold Saturday morning in January than at any time of the year, if statistics compiled by the American Automobile Assn. from reports of its affiliated motor clubs can be regarded as a barometer.

Conversely, the service station man can least expect calls to go fix a battery, a tire, or some other recalcitrant piece of automotive anatomy between the hours of 1 and 7 a.m. on a Wednesday in September, the figures reveal.

"Tire trouble, the principal cause of motorists' worries, drops off during the cold months," the A. A. A. reported, "but battery, ignition and starter troubles show big gains. Towing service is higher in the winter than at any other time, but apparently motorists are more watchful of their "gas" tanks, as out-of-gas calls are less frequent in winter."

The A. A. A. survey revealed that the number of calls received during the 9 to 10 a.m. period is more than one-and-one-half times greater than the general average for the 24-hour period. This peak hour is closely followed by two other big "trouble" hours — 8 to 9 a.m. and 8 to 9 p.m.

The off-period falls between 1 and 7 a.m., when calls for service amount to only 5 per cent of the entire day's total.

Saturday is the biggest day of woe for the motorist, followed closely by Sunday. Wednesday is the most trouble-free day, and September the most trouble-free month — as January is the most troublesome — according to the motoring association.

2 Ohio Counties Cut

CLEVELAND, Jan. 25.—Effective Jan. 25 Standard Oil Co. (Ohio) reduced motor gasolines 0.5 cent, through Franklin (including Columbus) and Knox counties, making new prices for X-70 (regular-grade), consumer tank wagon, 10 cents, and divided dealer price, 9 cents, exciuding 5 cent tax; for Renown (third-grade), 9.5 cents and 8.5 cents respectively, in both counties. Service station prices, at points where stations are still being operated by the company, were similarly reduced, to new price of 12 cents for X-70 and 10.5 cents for Renown, excluding taxes.

Prices in these two counties had been advanced 0.5 cent Jan. 20.

MILWAUKEE, Jan. 25. — The National Association of Petroleum Retailers announced today that E. Chat Shanks has resigned as executive vice president because of ill health. Shanks has left for an extended vacation along the Gulf coast.

Penna. Refiners Oppose Increase In Freight Rates

N. P. N. News Bureau

WASHINGTON, Jan. 24.—Testimony before the Interstate Commerce Commission by shippers in connection with the proposed 15-per cent flat increase in all freight rates, sought by the railroads of the country, closed here late today, following the appearance of industries affected by the rate hike, including two representatives of Pennsylvania refiners.

The hearings returned to Washington last week, after having been held at various cities throughout the country.

The oil men who testified were W. F. Clinger, Warren, and Earl A. Barror, Butler, who appeared on behalf of the Western Pennsylvania Refiners' Traffic Assn.

Clinger told the commission that the proposed increase would adversely affect the petroleum refining industry, whose position he described as "none too good," and added "but in all the industry, no group would be hit so hard by this proposal as the refiners of Pennsylvania grade crude oil."

Hits Refiners

The witness said the 15 per cent freight increase would make it "impossible for some refiners in Western Pennsylvania to continue operations." He said the increase may not be passed on to the consumer because prices are held down by the prices of lubricants made from the "cheaper grades."

"An increase in the price of lubricants to our distributors would reduce their profit and cause them to push the sale of cheaper lubricants. Our refiners would have to absorb the increase proposed," he stated.

Barror, traffic manager of Valvoline Oil Co., Butler, said the proposed increase would amount to about a half-cent a gallon on all tonnage of products moving from Pennsylvania grade refineries by rail. He said that shipping of these products by truck had "increased tremendously" recently, and that a large share of the tonnage which now moves by rail moves at motor-compelled rates.

"Any increase in the motor-compelled rates," Barror pointed out, "will, without doubt, result in a great portion of this tonnage going to the trucks."

A flat 15 per cent increase would, of course, be applicable to motor-compelled, as well as to all other rates, it was brought out.

Producers Draft Law

N. P. N. News Bureau

CLEVELAND, Jan. 24. — A committee of the Central Producers Assn., representing producers in Venango County, Pa., was drafting a conservation law today. D. B. McCalmont of Franklin, president, said it would be submitted to the next session of the state legislature.

Members of the Central Producers Assn. are producers in the lower Pennsylvania field, with a daily per well production of one-tenth to three-eighths of a barrel.

Upper field water-pressured well production is higher, estimated at an average of 2 or 3 barrels per day per well. Last week the Niagara Oil Corp. brought in another gusher in the Sliverville sand, near Lewis Run, upper field, Pa. Two other gushers, now tapped in, are in the same locality.

Pennsylvania oil men questioned today said that any "conservation" law in Pennsylvania would affect only upper field wells. The prices of upper field and lower field crude always advance or decline together.

Will Stay Under "Iowa Plan"

N. P. N. News Bureau

CHICAGO, Jan. 25.—Allan Jackson, vice-president in charge of marketing for Standard Oil Co. of Indiana, said today his company planned to continue the dealer plan of marketing unless developments now unforeseen should change the situation. Jackson also said that Standard of Indiana has retired entirely from retail service station operation.

"While the dealer marketing plan has not proved a complete success," Jackson stated, "we are reasonably satisfied with the progress dealers are making in adjusting themselves to their much larger responsibilities under the present set-up. The oil business is intensely competitive and it may take some little time for some dealers to realize the extent to which they must adjust their own operations to these competitive conditions."

Refiners Elect Officers

ALMA, Mich., Jan. 25. — The Michigan Oil Refiners Assn. last night elected permanent officers and a secretary and traffic manager.

The officers are, president, B. J. Skinner, president of the Midwest Refineries, Inc., Alma; vice president, D. E. Foster, McClanahan Refineries, Inc., St. Louis; treasurer, Reid Brazell, Leonard Refineries, Inc., Alma.

The association's traffic manager and full time secretary is Herman Berg, a former railroad traffic manager. The offices will be in the State Savings Bank building, Alma. The association, organized about six months ago, has 10 refiner members.

Distributes Pennsylvania Oil

By Telegraph

OMAHA, Jan. 25.—The Standard Oil Co. of Nebraska has announced that Quaker State motor oils and greases will be distributed in Nebraska through Standard dealers and other Quaker State retail outlets previously established, beginning distribution February 18. The company will continue marketing its regular line of lubrications.

Previously, the Standard Oil Co. of Indiana had announced that it would distribute Quaker State lubricants in the Indiana Standard territory beginning next month.

State Will Maintain Rights To Tidelands

LOS ANGELES, Jan. 20.—California state officials will take legal steps to maintain the state's rights to oil and minerals found under the tidelands at Huntington Beach, Long Beach and elsewhere along the shores of the Pacific.

This was the assertion of R. S. McLaughlin, deputy attorney general, at the final hearing of the state assembly interim committee on revenue and taxation, held here Jan. 20.

McLaughlin's contention was that the state granted certain rights to the municipalities in trust for harbor purposes only and retained all its sovereign rights. Representatives of municipalities controlling oil-bearing tidelands claimed that, even if the state's attitude was legally sound, the municipalities have actually used for harbor development all revenues derived from oil-lease royalties and, therefore, have complied with the spirit of the grant.

Injunctions Renewed Against Dealers

LOS ANGELES, Jan. 23.—The Los Angeles Superior Court last week continued in effect preliminary injunctions restraining two station proprietors from alleged price cutting.

The order applied to Irwin D. Roscoe and Roy Bittencourt, both of Los Angeles, who were charged in suits filed by the Retail Petroleum Dealers Assn. with violation of the California Fair Trade Act (not maintaining price nominated by the supplier), the Unfair Practice Act (giving secret rebates and discounts) and the Oil and Gas Substitution Act (selling under the posted price).

In another suit filed against William Fritchley, service station operator, a preliminary injunction against Fritchley was issued. He was required to file answer to the charges within 10 days.

R. R. Squire Dies

CLEVELAND, Jan. 24.—Reginald Rockefeller Squire, who like his father, was associated with the Standard Oil Co. (Ohio), died yesterday at his home here. He was 55.

Mr. Squire was with Sohio from the time of his graduation from Yale University in 1905 until 1907, when he formed his own concern, the Lubric Oil Co. This firm was sold to the Cities Service Oil Co. in 1921, when Mr. Squire retired. The late Feargus B. Squire, father of R. R. joined Sohio in 1876 and was vice president at the time of his retirement in 1909.

Pioneer In Lubricating Oils Dies, Aged 74

CLEVELAND, Jan. 25. — George A. Burke, 45 years with the Standard Oil Co. (Ohio) at the time of his retirement as vice president, was buried here last week following his death in New Orleans of a heart ailment. He was 74.

Mr. Burke was credited with developing lubricating oil for the first internal combustion engine operated in the U. S. For many years he was a successful lubricating oil salesman and played an active part in developing industrial lubricants. A son, Wallace E. Burke of New York, is in charge of lubricating oil sales for the eastern division of Socony-Vacuum Oil Co., Inc.

Two daughters, a brother and a sister also survive Mr. Burke.

'Guilty' Says Madison Jury; Defendants Plan to Appeal

(*Continued from page* 9)
verdict brought the trial to a dramatic close. Defendants and counsel took the jury's decision calmly, then began to scatter to their homes after being in Madison since the trial opened Oct. 4.

The final phase of the trial began at 1:33 p.m. Jan. 21 when the case was submitted to the jury. While jurors were at lunch deputy U. S. marshals arranged exhibits in evidence around the court room walls.

The heavy outer court room doors were closed and deputy marshals posted at each end of the long second floor corridors to prevent traffic passed the court room. About a dozen reporters took up their vigil, waiting around the second floor corridor or in the third floor grand jury room.

Jury arguments of opposing counsel, illustrated with first courtroom pictures of the trial, are summarized in this issue at Page 25.

During the afternoon and evening a few attorneys wandered in to inquire if there was any news and to receive the terse "no." Judge Stone came in for a while during the evening. At 11:30 p.m. the jury retired for the night.

Verdict Reached

Deliberations were resumed when the jury returned at 8:10 a.m. Jan. 22. At 9:30 a.m. bailiff was informed the jury had come to a decision. The bailiff dashed down the corridor to inform the judge.

Someone shouted "they've reached a verdict." Reporters and the few defense attorneys present finally had the awaited news, and scattered to telephones on the first and second floors of the federal building.

Within five minutes counsel, defendants, their wives and court room spectators began gathering. Corridors buzzed once more, as during the 16 weeks the trial was in progress, and at 10 a.m. the court room doors were flung open.

The court room buzzed until 10:25 o'clock when the jury filed in, everyone scanning the grim faces of the jurors to see if the verdict could be anticipated.

Judge Stone soon mounted the bench and the foreman, Hiram Nelson, retired telephone company manager at Stoughton, handed the sheaf of blue-backed verdicts, one for each defendant, to the clerk of courts who placed them before the judge.

The court room silence was broken only by a slight buzz when the judge, in leafing through the verdicts, hesitated several times. All verdicts were kept on one pile.

"Guilty As Charged"

Then the judge began a rapid reading of the defendants, individuals and corporations, starting with Standard Oil Co. of Indiana, and announced the verdict was "guilty as charged."

The court room silence was broken. Defendants sat quietly and calmly. Spectators began talking quietly and counsel began conferring with each other. Reporters hesitated, to check with each other to make sure they had heard the verdict correctly, and then dashed for the telephones.

Judge Stone polled the jurors and announced the jury was dismissed. Frederick Wood, Sinclair counsel, cried out "no, no." Counsel hurriedly conferred, then nodded to the court, and the jurors filed from the box.

Defense counsel headed by H. H. Thomas, Madison attorney, crowded about the bench. The right to file motions was granted. And the trial was over, all within 15 minutes of the time the judge mounted the bench.

All defendants were present except the four absent with the court's permission. The bond was continued, of $5000 for each defendant except the $1000 bond of A. G. Maguire, of Milwaukee, Wadhams Oil Co., the only Wisconsin defendant.

When the verdict was returned only two of the five government counsel were present, Hammond E. Chaffetz and Grant Kelleher. John Henry Lewin and W. B. Watson Synder had left for Washington. William P. Crawford, Superior, Wis., attorney who joined the government staff shortly before the case started, was absent.

Counsel At Table

Government counsel again sat at a table beneath the bench. Defense attorneys were in their customary places at a table in front of the spectators section. Between was the table from which final arguments had been delivered earlier in the week. Defendants and some of the defense counsel were in their customary places along the wall opposite the jury box.

Defendants were convicted of conspiring in 1935 and 1936 to fix tank car gasoline prices through buying surplus gasoline from independent refiners, named as co-conspirators but not indicted, in the Mid-Continent and East Texas fields. The offense is a misdemeanor under the Sherman anti-trust law of 1890. The penalties, levied by the judge, are $5000 fine or one year, or both.

The final week of the trial was devoid of any testimony. The government had completed rebuttal and the defense surrebuttal testimony at the close of the previous week. Jury arguments began at the opening of the final calendar week.

First argument was for the government, given by Lewin.

Then the defense gave three arguments. T. W. Brazeau, of Wisconsin Rapids, argued first, followed by Thomas. Col. W. J. Donovan, of New York, chief defense counsel, completed the argument by late Thursday morning.

Government argument was resumed by Chaffetz. Judge Stone immediately read the charge to the jury, 52 pages double spaced of legal size sheets. The two alternate jurors were discharged and the case submitted to the jury at 1:33 p.m.

The verdict brought to an end a four-month trial following two grand jury investigations in 1936.

The first grand jury convened on May 4, 1936, in Madison. Two indictments were returned by late summer. One charged a conspiracy to fix tank car prices. The other indictment charged a conspiracy on jobber contracts, beginning in 1931, that is still pending and that may come to trial next fall.

Defendants entered pleas of abatement in the fall of 1936, charging the grand jurors had not been selected in the manner provided by law.

Another grand jury was impaneled, sat for several weeks in December, 1936, and a few days before Christmas returned two more indictments, similar to those of the first grand jury.

Several hundred witnesses had been called, to testify before the grand jury under an oath of secrecy that later was lifted by order of the court.

Originally, there were 56 individual defendants and 23 company defendants. However, ten of the individual defendants were not brought to trial.

Defendants pleaded not guilty on arraignment last spring and trial was set for Oct. 4. During the trial 16 individual defendants were dismissed, as were seven oil companies and three trade publications, NATIONAL PETROLEUM NEWS, *Platt's Oilgram* and the Chicago Journal of Commerce and Warren C. Platt, head of the Platt publications.

Trade publications were

List of Madison Convictions

Individuals

Edward G. Seubert, Chicago, president Standard Oil Co. of Indiana.
Allan Jackson, Chicago, vice president in charge of sales, Standard Oil Co. of Indiana.
Jacob France, Baltimore, president Mid-Continent Petroleum Corp.
I. A. O'Shaughnessy, Minneapolis, president Globe Oil and Refining Companies.
A. V. Bourque, Tulsa, secretary Western Petroleum Refiners Assn.
Edward B. Reeser, Tulsa, president Barnsdall Refining Corp.
H. E. Brandli, New York, vice president Cities Service Export Oil Co. (former subsidiary of Cities Service Co.).
Harry D. Frueauff, Tulsa, vice president Cities Service Export Oil Co. (also vice president Empire Oil and Refining Co.).
O. J. Tuttle, Tulsa, tank car sales manager Empire Oil and Refining Co.
Dan Moran, Ponca City, Okla., president Continental Oil Co.
Harry J. Kennedy, Ponca City, vice president in charge of marketing, Continental Oil Co.
Robert W. McDowell, Tulsa, vice president in charge of sales, Mid-Continent Petroleum Corp.
Henry M. Dawes, Chicago, president Pure Oil Co.
C. B. Watson, Chicago, vice president Pure Oil Co.
R. H. McElroy Jr., Chicago, tank car sales manager Pure Oil Co.
W. G. Skelly, Tulsa, president Skelly Oil Co.
Edward J. Bullock, Chicago, vice president in charge of purchasing Standard Oil Co. of Indiana.
Edward L. Shea, New York, president Tide Water Associated Oil Co. (the company has been acquitted).
Noel Robinson, New York, vice president Tide Water Associated Oil Co.
J. W. Warner, Tulsa, Tide Water Associated Oil Co.
C. E. Arnott, New York, vice president Socony-Vacuum Oil Co.
H. T. Ashton, St. Louis, manager Lubrite division, Socony-Vacuum Oil Co.
C. L. Jones, New York, vice president Socony-Vacuum Oil Co.
Bryan S. Reid, Chicago, general manager Chicago division, Socony-Vacuum Oil Co.
A. G. Maguire, Milwaukee, chairman of the board, Wadhams Oil Co. (subsidiary of Socony-Vacuum).
J. W. Carnes, New York, vice president Sinclair Refining Co.
Frank Phillips, Bartlesville, Okla., president Phillips Petroleum Co.
A. M. Hughes, Bartlesville, Okla., sales manager Phillips Petroleum Co.
Alexander Fraser, St. Louis, president Shell Petroleum Co.
P. E. Lakin, St. Louis, general manager of sales, Shell Petroleum Corp.

Corporations

Socony-Vacuum Oil Co.
Wadhams Oil Company (Socony-Vacuum subsidiary).
Standard Oil Co. of Ind.
Pure Oil Co.
Sinclair Refining Co.
Barnsdall Refining Corp.
Shell Petroleum Corp.
Skelly Oil Co.
Continental Oil Co.
Mid-Continent Petroleum Corp.
Cities Service Co.
Empire Oil and Refining Co. (Cities Service subsidiary).
Phillips Petroleum Co.
Globe Oil and Refining Co. of Kan.
Globe Oil and Refining Co. of Ill.
Globe Oil and Refining Co. of Okla.

charged in the indictment with publishing gasoline prices paid by defendant major oil companies. The government's position changed from knowingly publishing defendant prices to publishing prices affected by defendants' buying activities. Trade publications were dismissed on motion of the government Nov. 11.

In making a final jury plea Chaffetz charged defendants offered to buy gasoline from independent refiners, and independents knowing the price at which they could sell to majors thus had their spot market price to jobbers affected.

Hadlick Praises Madison Verdict

N. P. N. News Bureau

WASHINGTON, Jan. 22. — "The competitive market in the oil industry in the middle west —from the well to the consumer —is now restored," stated Paul E. Hadlick, secretary of the National Oil Marketers Assn., commenting on the convictions obtained in the Madison oil conspiracy case.

The N. O. M. A. is generally credited with being responsible for the investigation which culminated in the oil indictments at Madison.

"The Government's victory in this now famous anti-trust case is most welcome news to the thousands of independent oil marketers of the United States who were being forced out of business by the pool buying activities of these major oil companies," Hadlick said. "It should free them from the 'squeeze' of fixed wholesale and retail prices by which these major oil companies have been forcing them out of business at the expense of the consumers.

"I am naturally much gratified by the diligence of the Department of Justice in seeing this case through to completion. The greatest praise is due to the small group of Government attorneys who handled the case, namely, Wm. P. Crawford, Hammond E. Chaffetz, John Henry Lewin, W. B. Watson Snyder, and Grant W. Kelleher, for their conscientious and intelligent performance of duty."

The history of the Madison case goes back to June 18, 1935, when a committee from the N. O. M. A. appeared before Attorney General Homer S. Cummings and filed a complaint with the Department of Justice, he pointed out. This complaint stated that the independent oil marketers were being seriously injured by activities of the major oil companies which were alleged to be in violation of the anti-trust laws.

Exodus Starts As Madison 'Abdicates' As Oil Capital

N. P. N. News Bureau

MADISON, Jan. 24.—Madison has abdicated as the temporary oil capital of the world.

The "back home" movement from this midwest university city that held the oil industry's attention since the conspiracy trial started last Oct. 4, began early last week. Then after the jury's verdict was returned Saturday morning the movement reached its peak.

Within a few hours the city was virtually devoid of out-of-town oil men. A few defendants and counsel were still on the scene Saturday night but hotel lobbies and dining rooms gave no sign of the activity of the past sixteen weeks.

The abdication, however, may be of a temporary nature. A second indictment is still over in the federal district court, charging oil men with writing uniform jobber contracts.

Rumors were about here early last week that the second indictment might come to trial in April or in the fall. But the rumor about an April trial may be laid to rest, and autumn seems to be the earliest that the case is likely to come to trial—if ever.

The court and counsel for both sides have just completed a trial, that can claim to be one of the longest on record, involving over 1000 exhibits, more than 12,000 pages of testimony from 66 witnesses.

With the end of the trial appearing on the horizon about a week ago the first signs of departure appeared. The pressure of work on the back-of-the-scene workers began to lessen. Accountants and office workers whose life for weeks had been a routine of work, eat, sleep and more work, began coming over to court. Many had not seen the inside of the court room until the closing days.

The departure began when the charge was given to the jury Friday.

On the government staff John Henry Lewin was the first to leave. W. B. Watson Snyder was about in government counsel headquarters Friday night, while reporters waited in the grand jury room on the floor above for the verdict. Hammond E. Chaffetz and Grant Kelleher waited for the verdict, then started back to Washington.

Col. W. J. Donovan, chief defense counsel, and others of the defense staff left Saturday afternoon. A skeleton crew stayed at 1 West Main St., defense legal headquarters, preparing the motions to be filed and cleaning up the details.

Records of oil companies obtained by the government under subpoena for the grand jury in 1936 will remain in Madison, impounded in the federal building.

Reliving NRA Days

The Madison trial was like reliving NRA days. There were times when eleven members of the Planning and Co-ordination Committee were in the courtroom, including all of the former chairmen.

Madison was the scene also of a reunion of all but one member of the Petroleum Administrative Board — and the absent member received an "invitation" to be present.

Close your eyes in the courtroom, and the illusion of NRA days was complete.

Dr. John W. Frey, now associate director of the Interior Department's petroleum conservation division was on the stand telling about PAB meetings with Chief Stabilizer Arnott.

Preceding Frey, there was "Jack" Shatford, El Dorado, Ark., refinery co-ordinator under the code, talking about the plight of the independent refiner.

The talk about Ickes and dollar crude, Arnott and stabilization, stripper wells and "hot" oil, and the ravages of price wars "spreading like wild fire," had a familiar ring.

Secretary Ickes was not there in person, but his spirit hovered over the courtroom; and once he telegraphed defense counsel in response to a telephone call to the Interior Department during a recess.

To the right of Judge Stone's bench sat Ralph Horween, who was deputy oil administrator under Ickes. Also, seated among the defense counsel, was Amos L. Beaty, former chairman of the P. and C. Committee.

Back among the spectators was "Jim" Collett, Fort Worth, who was last chairman of the national code committee, and Wirt Franklin, Ardmore, Okla., first chairman. Both were defense witnesses. There also sat Wilmer R. Schuh, Milwaukee, president of the National Assn. of Petroleum Retailers, and former Committee member.

Listed among the defendants were seven members of the P. and C. Committee — two of them not on trial.

James A. Moffett, New York, former federal housing administrator and government representative on the code committee, was a defense witness.

Sprinkled among the defendants, counsel and spectators was an assortment of allocators, review board members, regional code chairmen, members of P. and C. Committee's subcommittees, code committeemen, secretaries and the like.

Charges Jury That Government Had Not Approved 'Gas' Buying

MADISON, Jan. 24. — The court's charge to the jury in the oil conspiracy trial here Jan. 22 reviewed the Sherman Act, allegations in the indictment, competence of witnesses, and testimony by defendants. Individuals or corporations acting together to raise prices where they control a substantial part of the interstate trade of the commodity manufactured is a Sherman Act violation, the charge states. Also a combination is illegal "regardless of whether the prices fixed or brought about by the combination were high prices or not, or were reasonable or unreasonable."

Other factors in raising prices such as the Connally act, code allocations, and increased consumer demand do not matter, the charge related, if an illegal combination existed among all or some defendants having the purpose of raising prices.

Nor does it matter how high or how low the prices may be fixed, nor that they may have needed the gasoline. Nor does it matter whether majors or independents led the prices upward, the charge stated.

Knowledge Not Sufficient

Mere passive knowledge of a conspiracy is not sufficient to make one having such knowledge a member of an unlawful association, said the charge.

"The evidence must satisfy you, not only that he had knowledge of the existence of the conspiracy and its unlawful nature, but that, with such knowledge, he knowingly participated to some extent with the members of the combination for the purpose of aiding in the common design. It is sufficient, however, that you find that a defendant, having knowledge, being in a position to confer authority, authorized or ordered the doing of the illegal thing by or on behalf of his company.

"For example, the president

(*Continued on page* 24)

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Warren C. Platt, *Editor and Publisher*
V. B. Guthrie, *Managing Editor*

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He Oiled The Bearings For Wealth and Happiness

By WARREN C. PLATT, Editor

Fifty years back the lubricating oil business was a strange mixture of whale oil, tallow, a petroleum lubricant that was being strained, bleached in the sun and even "steam refined", axle grease and experience—but no science whatsoever.

This January, Herbert P. Bagley, of Worcester, Mass., is celebrating his fiftieth year in the oil business, all of that time as a lubricating oil company.

It is his fiftieth anniversary with the business of lubrication but it can hardly be called the fiftieth anniversary of lubrication as a science because that, as we now know it, is of much more recent growth.

Fifty years ago they were only trying to make things "slippery"; however, the oil industry even then had been struggling with a modern lubrication problem for years, that of making a lubricant stay on the walls of a steam engine cylinder and not be washed down by the steam. This trouble was tackled in all the rule-of-thumb ways imaginable, from "dopes" for the oil and cigars and $5 a month put in the greasy fist of the engineer, to the best products that could then be supplied.

It was in those days that Mr. Bagley started. As head of White & Bagley Company, he has seen the industry struggle through adolescent ignorance into the present period, where the array of glassware and brass and copper instruments in a modern lubricating oil laboratory is visible evidence to the eye of the casual observer, of the existence of a science of lubrication of such as no one would have dreamed of back in those early days.

Mr. Bagley has not only done his fair share for the real science of lubrication but he early reached over into merchandising, one of the very first to do so, and pioneered a trade name "Oilzum" which he made into national importance.

It's a long day, Mr. Bagley, from when you stood on the shipping dock and watched your first barrel of "lube" hauled away in probably a non-too-secure spring wagon to your first customer. But there must be a lot of satisfaction, too, in looking back over that long day to all of the millions and millions of bearings that, because of the touch of your business hand, whirred more smoothly and more quietly as the years passed, until today they are noiseless. It must be a satisfaction to know that that smoothness and efficiency was contributing to the production of work hours and to hundreds of new and usable commodities that were helping to make this country and this civilization of ours better and happier.

It wasn't grease and oil you were producing, Mr. Bagley, but health, wealth and happiness that came from those increasingly speeding bearings. So, for this contribution of yours to mankind and for your more immediate contributions to this oil industry, may I join with the industry in offering its congratulations and best wishes on your fiftieth anniversary as a most worthy member of it.

Mid-Continent Skyline . . . .

By LAWRENCE E. SMITH

The next meeting of the Interstate Oil Compact Commission will be held in Wichita, the date yet to be set. This meeting, Chairman Ernest O. Thompson indicated to this writer, will deviate from the usual pattern. Invitations are being sent to the heads of all the schools of petroleum engineering and there will be discussion and perhaps some formal papers, of the very latest wrinkles in the conservation art.

Ordinarily, the meetings of this commission last but two or three hours. Except for the Houston meeting in October, and the latest one in Oklahoma City, there have been few exchanges of ideas except of the short report-of-situation kind. As the compact is primarily designed to foster methods of preventing waste, the proposed discussion at Wichita should do much to further the compact's popularity.

The Oklahoma City meeting, Jan. 18, was a short session and notable for only two things. Charles F. Roeser, president of the Independent Petroleum Assn. of America, called attention to the burdensome stocks of crude oil and gasoline and urged that crude oil production be reduced at once. The agreement of Chairman Thompson was evidenced in the questions he asked. This agreement was translated into action two days later when the Railroad Commission of Texas ordered six consecutive Sunday shutdowns.

The other feature of the meeting was the display of charts and maps illustrating the conservation results in Texas. The exhibit was quite elaborate and impressive. Pressure maintenance in such fields as East Texas, Conroe, Yates and others was shown, as well as figures on the Panhandle gas area, which today has only negligible wastage, in contrast to its performance of three years ago.

V. E. Cottingham, commission engineer, discussed the exhibits. M. L. Haider, Carter Oil Co., established that conservation is not confined to Texas, when he told of pressure maintenance results in the South Burbank field, in Oklahoma. This is one of the prize items in any collection of scientifically operated oil fields.

* * *

"Frozen" Oil to be Sold

Total of 483,112 barrels of oil, ranging in grade from heavy fuel oil in pits to crude oil in steel storage, has been ordered sold at public auction by the district court of Travis county, Texas. This is part of the holdover from the East Texas "hot" oil days. About 2,500,000 barrels will be left after this sale. It is in various lots, some big quantities and many a lot of a few hundred barrels in a small pit.

The coming sales will be held in Henderson and Longview, Jan. 31 and Feb. 1. The total represents the oil filed on in six suits. In the past, nowhere near the fair market price has been realized in many sales, owing to technical defects in the court proceedings. Probability that the title to the oil would be challenged because of such defects has kept bidders away. In many such instances the only bidder would be the person or firm from whom the oil was taken and the bid, of course, would be low.

Sales are ordered under the Texas law providing for such disposal of oil produced in excess of the amount ordered by the Railroad Commission.

Platt Suggests Plans for Oil's Future Developed from Madison Case

(*Continued from page 9*) abdicated his right to have anything whatsoever to say about the price in their contractural relationship and had turned that task over to these few Independent refiners and these several hundred small Independent jobbers who are selling "unbranded" gasoline.

Despite the falsehoods the government placed in the indictment, the evidence clearly showed, and the government finally so admitted in discharging us, that the reporting of the prices in the tank car markets by NATIONAL PETROLEUM NEWS and *The Oilgram* was absolutely accurate. In fact it was surprising how closely we had hit the exact market, day after day, considering that we have to do it by telephone calls daily to many men all over the country and take their word for it.

The Madison case plainly showed that the industry could have no complaint over the job the price reporting mediums are doing, but that the difficulties are due to the type of the market itself, to its "thinness", to its smallness, to its being what one might quite properly call a "private" market of less than perhaps 300 people, which had been borrowed by the rest of the industry for contract purposes.

The rest of the oil industry is just as far off from this tank car market and has no more to do with it than the operators of the famous "policy" and "numbers" games which use the last two or three figures of each day's total sales on the New York Stock Exchange or of the daily balance of the Federal Reserve Bank have to do with those institutions.

Sizable Market Needed

It is easily possible to build this tank car market up into a sizable and sensible and comprehensive market—I mean tank car markets all over the country—and make this market reflect the thinking and the buying and selling of every refiner in the country—big and little—and of a large number, several thousand, oil jobbers and brokers.

Ways to bring this about will be discussed from week to week now by NATIONAL PETROLEUM NEWS and *The Oilgram*. It is not a new subject for us nor are these ideas of ours necessarily new, as we have been calling the attention of the industry to this problem and the ways for meeting it for a dozen years or more.

Another problem, the solution to which can now be discussed without embarrassment to either side, if all of the talk is kept in the open, is the margin between the tank car price and the retail price.

The solution here would seem to lie in establishing a large and fair tank car market which each day can produce prices on which the industry can base its retail price structure.

If the entire industry, including all the major oil companies, were then to adopt the policy of resting their entire marketing operation on the tank car market price, all marketers, big and little, would start on the one level.

In doing this it would seem to be wiser if the larger companies gave the head of the marketing department his profit and loss statement every month, based on all products charged to it at the tank car market prices, and also made these profit and loss figures public in the regular published financial statements.

With the marketing operations of the industry resting on a strong, broad and representative tank car market, then it would seem that the problem of the extent of the jobber and dealer margins could be left to fair and free competition, competition of which there could be no doubt in the public's mind and which could be regulated as to its fairness by suitable rules of the Federal Trade Commission and state trade commissions.

Danger of State Control

However, if the industry should continue with its present policy of a guaranteed margin, or a protection guarantee over the tank car market, the differences between buyer and seller could only become greater, with increasing danger of state and federal governments trying to fix the price, first to the distributor and then to the consumer.

Enough state investigating committees looking into the oil industry are talking that right now to make the industry give this possibility serious consideration. However enticing state controlled distributor margins may appear, any student of today's government can quickly tell you that such regulation would always be for the consumer who has the votes and not for those in the industry who could be accused of having the dollars.

A third problem, which is only the outgrowth of the two problems heretofore named, is the failure of the industry to bring about suitable machinery for the true representation of the great group of some 10,000 jobbers, and also the several hundred thousand dealers in the country.

Producers, big and little, and the so-called "stripper well" men, have their own well organized associations that tiein directly to contact with the large companies mostly through the American Petroleum Institute. The independent refiners also are well represented both through their several district associations as well as within the membership, committees and board of directors and officers of the Institute.

But the oil jobbers and the dealers, particularly the oil jobbers, are not in the proper contact with the rest of the industry. The jobbers have their own state associations that are getting stronger and daily improve the job they are doing. They have their National Oil Marketers Association, which filed the complaint that brought about the Madison case, but that association is supported by only a comparatively small number of jobbers.

Jobber Ignored During NRA

During the NRA code period, in the grand scramble for the high places in administering it, the jobbers were shoved aside not intentionally but there were just too many major company executives who had sharper elbows and an early start on the coveted positions. This, plus Oil Administrator Ickes' policy of secrecy, which he vigorously enforced on all code workers to the end that only he could speak, soon put the code authorities where they were not, and could not, lead the entire industry.

The result was that long before the Supreme Court cast the code into the discard, it had ceased to function in oil marketing, partly at least for the very simple reason that the majority in marketing were not properly and adequately represented in its councils.

Jobbers were put on district committees, it is true, but they had no worthwhile contact with Washington and had little to do about the policies which were finally decided on at Washington in what amounted, for all practical purposes, to the greatest of secrecy. How a proposition was developing at Washington, what was being said for it and what against it, was kept from the rank and file. They were only told the final decision, generally when too late for any objections.

Thus the greatest experiment in industrial democracy flopped completely because the oil industry leaders forgot that, when you take strictly industrial matters out of the control of private ownership and undertake to exercise this private ownership control under the auspices of government and with the benefits—presumably—of government, the proposition becomes a political one. The advantages of government and the powers of government belong to every one, every single man in the oil industry no matter what his business or his job. He must be consulted about every single thing that the leaders seek to use those powers for. His approval or acquiescence must first be obtained. Otherwise you will have a dictatorship.

A.P.I. Flopped

The American Petroleum Institute also has flopped completely so far as representing the marketing part of the oil industry is concerned. For years it has had a vice president in charge of marketing and, up to the last year or so, it arranged to have some papers on marketing read at a solitary meeting devoted to that subject, which was always poorly attended. The reason is that the Institute's officers just never did know who the oil jobbers were, and never had occasion to come in contact with them. These officers were of producing and refining and big company origin.

All this is the stranger because the man who ran the Institute in its early perilous years, as its general counsel, R. L. Welch, served his apprenticeship in the oil industry as secretary of a particularly belligerent western oil jobbers association. Had he lived undoubtedly the story of the Institute would be different.

This is not a new criticism of the institute but I think it should be repeated now at this arrival of the industry at a cross road. I have always believed in and fought for the institute and still believe in it as one of the greatest organizations that has ever represented any industry. However, I just cannot see its neglect of oil marketing and the independent units that comprise oil marketing. This we have said in writing and in person many times.

Oil jobbers might have solidified behind strong and intelligent leadership during the code period had they been properly encouraged. While many of the larger companies have done much to encourage the state jobbers' associations, their high-

'Intelligent Relations With Jobbers Needed'

est executives have not paid enough attention to them though in most cases a large part, more than a major part of their business, is done through the jobbers.

Relations With Jobbers

More intelligent relationship with jobbers can be expected from now on. The big oil company executives sitting these past three months at Madison have a clearer idea of who these jobbers are and what they contribute to the industry. Closer contacts should be encouraged, not for the purpose of fixing up any deals but that each may know the other and each may have a clearer idea of the problems of the other, because those problems are mutual.

As the first two mentioned problems are met—the tank car market and the industry's relation to that market — the problem of eliminating the unnecessary friction within the industry and giving all divisions of it a better understanding of each other, will progress still further toward a correct solution.

NATIONAL PETROLEUM NEWS will develop a discussion of these problems and hopes to present some ideas each week from now on. To this discussion it invites every one to contribute. Also NATIONAL PETROLEUM NEWS and its staff have some definite suggestions as to the mechanics for solving these problems that it will present in the course of the discussion.

For the present, I urge that you continue your study of these problems and carefully read my following remarks on some heretofore undisclosed features of this Madison trial, which will have considerable bearing on what can be done with the industry's problems.

Consideration of the Madison anti-trust case and the verdict of guilty brought against all the remaining individual and corporate defendants should be in three parts:

First—What brought about the case, the complaint of the jobbers to the government and why it originated.

Second—The verdict itself, just what was determined by it.

Third—How the government conducted itself in connection with the case.

Much as there may be about this case in this issue of N.P.N., I think it is only fair play to ask the industry to read this following statement carefully and in full.

For nearly two years now I and the other defendants have had to hold our tongues, even though some of us were early discharged from the case. The government's indictment was a full statement of all that it hoped to prove. It got wide publicity.

My story never has had a chance to come out except as parts of it were presented in conjunction with the general defense of the other defendants. Also the defense story was difficult to present because of its technical character and the many interruptions by the government. Elsewhere in this issue are fairly detailed statements of defendants' counsel as well as government counsel, summing up their respective arguments to the jury.

But now I ask of my readers of all these many years that they give special and unbiased consideration to this statement. It is something about my own place in this case and necessarily also about the place of the other defendants. However, let me add most emphatically that I am only speaking for myself and not on behalf of any other defendants. Nor have I consulted with them in any way in connection with this statement. Their case, while decided by the jury, is still in court on motions to set aside the verdict, or grant a new trial, and for appeal.

What Brought About The Case

Much of the underlying cause of the Madison case is given in a foregoing statement as to the oil jobbers not taking or getting a leading part in the national affairs of the oil industry. Part of the cause also comes from the jobber's as well as the refiner's misconception of the tank car market and the refusal of both of them to see the facts. Refiners and jobbers have been equally guilty in turning over to total outsiders to their mutual relationship—outsiders who did not want and did not invite the responsibility—the great burden of determining the price at which these refiners and jobbers would do business.

The primary jobber complaint originated when the Standard of Indiana cut the gross jobber-dealer margin from 6 to 6½ cents down to an average over its ten states of 5½ cents a gallon on gasoline. This was in September, 1934. The Standard said it was done only after careful study of thousands of sales tickets of competitors' prices, and to protect the company, if possible, against further loss of gallonage. Refiners and jobbers protested the cut in the margin.

By June, 1935, the jobbers or some of them at least—felt their margin had been reduced too much, not only by this action of the Standard of Indiana but by reason of market practices by the larger companies which the code did not or could not prevent.

A Formal Protest

In June, 1935, in national convention at Washington, the National Oil Marketers Assn., after much discussion, adopted a resolution calling on the federal government to investigate the situation. This was presented to the Department of Justice by a special committee on June 18. Emphasis in this protest was laid chiefly on the alleged agreement by refiner suppliers on an alleged uniform jobber's contract the past winter, and the rapid advance in the tank car market in the spring of that year.

The alleged agreement on jobbers' contracts was made the subject of a second indictment against substantially the same oil companies and individuals as in the first indictment—except the trade publications—and this second indictment now awaits trial.

What the Verdict Means—Platt

Shoving aside the literally tons of detail in the evidence the jury's verdict of guilty says, in layman's language (subject to correction by the lawyers of course) that the buying by the defendants was not just incidental to the defendants' efforts to eliminate trade abuses but had an important part in raising prices and that the government's instigation of, knowledge of, and acquiescence in the buying program was not sufficient to protect the defendants from the Sherman anti-trust law.

Some of the story of how the government worked with the defendants in this alleged conspiracy is set forth in the closing argument of the defense to the jury made by Colonel Donovan, printed elsewhere in this issue. More of the story is in the record of the case and will be presented to the higher courts on appeal; but it was not permitted by the trial court to be presented to the jury under the court's interpretation of the rules of evidence.

However, the most interesting of this evidence which did not get to the jury concerns the letter that Chief Stabilizer Arnott received from Oil Administrator Ickes July 20, 1934, which told Arnott to go forth and straighten up the markets of the country. After months of battling this letter finally was placed before the jury; but the legal opinion of Louis Titus, counsel for the oil industry's Planning & Co-ordination Committee and the statement that he made as to his conference with Chairman Fahy of the Petroleum Administrative Board in regard to the letter were not admitted and still are secret to the jury.

Mr. Arnott testified at Madison that, on receipt of the Ickes letter, he submitted it to the P. & C. Committee, which in turn called on its counsel. Louis Titus for the usual opinion as to just what in law the letter meant. Mr. Titus, in a statement which was read to the court in a "proffer of proof" but rejected along with Titus' opinion to Mr. Arnott, said that he called on Chairman Fahy of the P.A.B. and argued with him that he—Titus—thought the letter should require any agreements made pursuant to it to be in writing and to be submitted to the P.A.B. for its approval and the signature of Ickes as oil administrator.

In the proffer of proof, Titus recites that the argument was long and finally rather warm. Fahy took the position that approval of stabilizing activities was not necessary, that Ickes was too busy to be bothered with all the propositions that he would probably have to look over and approve, and Fahy demanded that the industry go ahead on Ickes' instructions.

Let Mr. Titus' statement that was proffered the court at Madison tell the rest of the story of the interview with Mr. Fahy, who by the way is now chief counsel for the National Labor Relations Board. Mr. Titus says:—

"I told Mr. Fahy that I was not satisfied with the letter and thought that it should be revised to provide that Mr. Ickes should either approve or disapprove each agreement or arrangement which persons in the industry entered into in settling price wars or in eliminating the various causes of those wars.

"Mr. Fahy did not concur in

Platt Discusses PAB's Part In 'Conspiracy'

this suggestion of mine. Mr. Fahy strenuously objected to this and stated that he would not be running to the Administrator every few days to get orders signed approving or disapproving these agreements or arrangements. He said that it was not practical to work the matter out in that way. He said the government had assisted the oil men materially and it was only fair that oil men should appreciate this and co-operate with the government in its efforts to stabilize this industry.

"He said the letter of July 20, 1934, was a direction to Mr. Arnott to do the job of eliminating price wars and getting prices back to normal so that the Recovery Program could be accomplished.

"He also said, 'You don't need the orders of approval which you are requesting. This letter is complete protection to you. It is all you can possibly need.'

Titus Quotes Fahy

"He said, 'What are you afraid of? You apparently are afraid of your own shadow. You can't possibly think that the government will actually prosecute you for something that the government is demanding that you do?'

"I said then that it did not seem to me it would be very much trouble to get an order for each separate arrangement or each separate meeting, but he flatly refused and again reiterated, 'This letter now, which the Administrator has signed, is all you need.'"

Mr. Titus recites that he then gave Mr. Arnott an opinion that he could proceed as indicated in Ickes' letter and that he sent a copy of the opinion to Fahy and later saw the copy on Fahy's desk and that Fahy never raised any question as to the opinion or the work done under the letter.

Unfortunately, for the defendants, the jury says Mr. Titus was right and Mr. Fahy, chairman of the P.A.B. and now chief counsel to the NLRB, was wrong. But the error does not cost Mr. Fahy anything, only the oil men who relied on him.

Messrs. Arnott and former chairmen Franklin and Collett of the P. & C. Committee sought to testify at Madison about this matter but were halted by government objections. They would have said that neither Fahy nor any other member of the P.A.B., nor Ickes, ever asked or hinted in any way that the stabilization work and the gasoline-buying program were illegal or should be stopped, though these government officials were kept informed in regard to them.

Dr. Frey Approved

Dr. Frey, member of the P.A.B. and today associate director of the Petroleum Conservation Division which has supervision over oil in the Interior Department, also testified that he had not thought the buying program was illegal and that he had not asked the industry to desist from it. On the contrary, he considered the buying program necessary and beneficial and, he testified, as did the other members of the P.A.B.

Government counsel argued before the jury that the oil men had plenty of good lawyers who should have known that such buying was contrary to law and that these oil men should not have bothered with the opinion of "minor government employes" whom government counsel called "pygmies" and "mice."

Government counsel also contended that, anyway, it was not the duty of a public official, sworn to enforce the law, to advise a person that he was violating the law if the official saw a violation or thought the law might be violated. Government counsel said that they would not have advised the oil men that they were violating the law; or at least, when defense counsel got after them about it, government counsel said they would not consider it their duty to so advise the oil men.

In other words, government counsel was contending that public officials should not work for obedience to law, but rather to wait for violations and then inflict the penalties. Rather a Russian-dictatorship point of view, one might say, even though it was set forth by two products of a well known eastern university, whose graduates are so much in power at Washington.

Misplaced Confidence

So, while these oil men and oil companies were convicted for violating the Sherman law, they also are convicted for misplacing their confidence in high public officials at Washington. I do not write this just to stigmatize these officials at Washington but to state a fact by which all business should be guided, as we have more and more bureaus in government, both state and national to deal with.

The bigger our government machinery gets and the more it reaches over business, the more political bureaus business will have to deal with. If these bureaus should go beyond their authority in their commands and demands of business and then leave business stranded, without assistance, when this authority is successfully attacked, then business is going to be in—in fact it is in right now—the sad predicament of having to determine the legality of all these bureaucratic orders before complying with them or refusing to comply with them.

If business refuses to comply, then it probably will face suit by the government, even though, to comply with the orders, business has to assume all the responsibility for any government error.

Government's Conduct of Case

The complaint on which the Madison indictment was brought was made June 18, 1935, while the alleged conspiracy was still on and had just attained its peak in prices, according to the government.

The two assistant attorneys general who carried on the trial seemed to appear in the "investigation" in February, 1936.

The grand jury began work May 4, 1936.

The first set of indictments was returned July 28, 1936; the second set — because the first were feared to be illegal — were returned Dec. 22, 1936.

Much was said at the trial by one of government counsel of the "long and crooked" road the "G-men" had to pursue to get the "evidence." Quite a tale was told in the introductory statement about the wonderful do-it-or-die characteristics of the "G-men" and it was repeated in the final argument to the jury. You were evidently expected to sit on the edge of your chair as the story unfolded.

But the facts are that "G-men" were few and far between. In fact perhaps there was only one of them and he more of the well known hotel "house dick" variety.

The men who usually carry on anti-trust investigations in the Department of Justice worked on this complaint when it was filed. Some calls were made at different parts of the country. But the investigation did not seem to move fast enough to suit the complainants. At different times they sent delegations to the department of justice and urged more speed. Finally in the fall the complainants brought some high-up political pressure to bear. Several months thereafter the two attorneys who tried the case appeared on the job. Both were graduates of Harvard at about the same time. One had been in the department for half a dozen years and the other had been in the legal department of the Agricultural Adjustment Administration under another Harvard New-Dealite.

We have not tried to rival the "G-men" in our detective work as to just when these two government attorneys got on the job but they located the writer in Chicago one Saturday afternoon late in February and from their conversation the writer judged they had been on the investigation only a short time. They said they had not then called on any of the refiners or any of the major companies, but had only called on some of the complainants. Later it was found they had talked to a few jobbers in Michigan and Wisconsin and several brokers in Chicago.

They told the writer that the prices we reported for gasoline were from a cent and a half to two cents a gallon too high. I asked for specific dates and supporting information saying that we checked carefully, followed down complaints but never had found ourselves but a fraction of a cent out of line and then only occasionally. Then they admitted they had talked only to the complainants and had no proof of price inaccuracy.

Wanted To Listen In

Their chief purpose in seeing me seemed to be to get me to let them listen in on our various telephone conversations when we were gathering our price information. I asked if the party at the other end was to be informed that they were listening in and they said no, they wanted to hear the conversation without warning. I told them those conversations were confidential, that we had always prided ourselves on keeping this information confidential and that we could not let them do that unless we notified the people at the other end of the line, in which event, I said, the chances were they would not understand what it was all about and might shut up, thus making it impossible for us to get any price information at

Platt Tells 'Inside Story' Of Madison Case

all. I said I wanted to co-operate with the government in getting the facts, that no one had anything to hide but that I could not thus violate a confidence that we had built up over many years of effort.

I was tempted to let my temper get the better of me and to tell them that I thought their proposition dishonorable, to say the least, if not even downright crooked and on a par with the government's notorious and illegal wire tapping which has recently received a much needed airing before a senate committee.

We talked over our method of reporting prices and the two government attorneys left with the understanding that we would meet again at some convenient place, in a month, when they would go over in detail our business of price reporting. I even offered to make a special trip back from Florida where I was going to get a rest. That was the end of their "investigation" with me, however.

Grand Jury Probe

The grand jury investigation, an unusual procedure for this kind of a case, was announced in April by the attorney general, who cautioned that it did not necessarily mean indictments but was a "convenient way" to get information.

President Roosevelt is reported to have told various people later that the grand jury was necessary because the oil executives would not talk to the investigators or supply any records. So far as I can find out that is not true.

The facts seem to be that the "investigators" just quit almost at the beginning of their "investigation." The men they are said to have tried to reach deny they ever heard from them, except one who was out of town when the call came. When this man returned in a few days he answered their call and was told they had returned to Washington. He was an active and important member of the P. & C. Committee and active in the "conspiracy," and one of the first men investigators should want to see.

In the meantime I had been running special appeals in NATIONAL PETROLEUM NEWS and the *Oilgram* for anyone who had any information or evidence of any inaccuracies in our prices to let me know at once. Despite the prominence and frequency of these appeals, we did not get a single complaint. I never claimed that we are perfect but it seems to me that if we were half as bad in our price reporting as these two government agents said, we should have raked up at least one faint peep from our own request for price complaints.

Then came the grand jury investigation and we hope there will never be another like it, for what the government operated in Madison does not belong in this country. It better fits the history of the old Spanish Inquisitions. In the federal district at Madison is an old rule, unlike nearly all other federal districts and not provided for by federal statute, whereby grand jury witnesses are given a secrecy oath that prevents them even getting advice from their friends or attorneys unless with the court's permission. The oil companies kicked on it but the judge stood pat.

'Third Degree' in Grand Jury

Under the shelter of this secrecy oath the government prosecutors put on demonstrations of the "third degree" that would beat any police headquarters. They bulldozed, browbeat and coerced witnesses who did not testify the way they wanted them to. They piled leading questions on leading questions and assumptions on assumptions until many of the witnesses were utterly bewildered and did not know what they were testifying to.

Occasionally the government ringmasters would get hold of a man who knew his rights and was not afraid to fight for them. But most of the refining and major company employes who were before the grand jury were inexperienced in the art of the "third degree" and, because of the secrecy oath, did not feel they could tell their attorneys how they were being mistreated.

When the grand jury show was going strongest the government attorneys pulled an indictment on the tank car buyer for Sinclair for alleged perjury. The subsequent court proceedings to get him to Madison to stand trial forced the government to show enough of his grand jury testimony which showed the kind of bulldozing that was going on there. One of the government attorneys finally admitted in court at Amarillo, Texas, that the indictment was pulled to cow the other oil witnesses.

'Refresh Recollections'

During the trial at Madison the government attorneys kept pulling the grand jury testimony out on their witnesses who evidently were not testifying to suit them. The attorneys denied they were trying to impeach their own witnesses but only sought to "refresh their recollections."

Judge Stone evidently smelled a rat for he had the government pass the grand jury testimony up to him for his inspection. Occasionally he would ask the witness to jog his memory a bit more but generally he announced that there was nothing in the grand jury record inconsistent with what the witness was saying in the actual trial.

At the end of the case, in his charge to the jury, Judge Stone said that no witness, when his testimony had thus been challenged from the grand jury record, was saying anything inconsistent with it. From all of which, plus the stories the witnesses told when they were released from their oaths of secrecy so that the defense could prepare its case, one can judge that the grand jury investigation certainly was a rough affair. Grand juries, be it said, are only supposed to seek facts.

Hearsay Evidence

As the case neared its close one wondered just what was presented to that grand jury for evidence. One finally is forced to the conclusion that much of what the grand jury heard was gossip, opinion, hearsay and the witnesses' "best recollection".

When the grand jury was called, the government subpoenaed from all of the refiners and the major oil companies all their purchase orders, contracts, invoices and correspondence pertaining to their tank car sales, as well as much other data. It is more than a suspicion now that the government investigators never looked at but a small fraction of this, and that mostly the correspondence. I had occasion later to look through many bundles of invoices and purchase orders that very plainly never had been opened at Madison. While the government in the indictment specifically said that the major oil companies had paid above the jobber's prices for gasoline and that we had printed only the prices the major companies had paid and had called them the jobber's price, the government in presenting its case kept away from giving any actual figures.

Particulars Refused

Twice my attorneys had presented a demand for a listing of those major company prices, the dates and companies to whom paid etc., this in moving for bills of particulars. My request was denied but a similar request of the other defendants was allowed and the government was ordered to particularize those alleged purchases of the majors. When the time came for the government to report it just passed the buck by saying the defense already had the information.

Then, when the government presented its case, it did not offer a single invoice or purchase order, nor name a single price or sale in support of its charges. Instead, it sought to have witnesses testify of "their best recollection" as to what they "understood" the majors had bought at.

On cross examination of the government's first witness, an employe from a major oil company, Colonel Donovan put in a chart showing that company's purchases. They were below or at the low of the publications' prices. Through the next major company employe called by the government, Colonel Donovan introduced another chart which showed the same thing as to his company. From all that can be learned it was about that time that the government began to check up the orders and invoices to try and get figures to support that charge against me in the indictment.

The results of this checking were not brought forth until the end of the government's case and then it was necessary for the court to hold a number of short sessions for the government to finish this part of its job.

Finally, one morning during the trial, at last in popped some charts on a few transactions only. The government asked a few questions designed to bring out that the defense was all wrong and that purchases were made at above the publications' prices, and so on. Then the government insisted that it was closing its case and protested loudly and volubly at the suggestion of the defense that it should be permitted time to study the charts and see if they were correct. No sir, that could not be, the government contended, because then the "poor jury" would be held there for two weeks or more longer, and

Says No Evidence on Prices Before Grand Jury

besides there was no reason for checking the charts. There they were.

One of government counsel told a tearful tale about how the "poor" government "only had three accountants", while the defense had any number and the government could not have been expected to have the charts ready sooner, and the other counsel added that the government could not start on the charts until "after" the trial had started.

Two points here appealed to me, that we should have to stand trial on a balled-up chart just because the government could not, or did not choose to, afford more than three accountants on a job and, however sloppily the government decided to do this job, that we should have to stand for it and be happy. In fact, throughout the whole trial the defense was made to feel that they were a lot of traitors because they did not accept without question and right thankfully, whatever the government chose to hand out.

No Evidence Before Grand Jury

The second point was the question as to what the government had given to the grand jury in the way of evidence to support the charge that we had printed major company prices and that they were above the prices paid by the jobbers in the same market. I could not conceive of a grand jury making such a serious charge as that without seeing the facts from books and purchase orders. Plain common sense would seem to require that the government had to find what the orders and invoices said before it could make such a charge and place a man in jeopardy.

While the government fought hard to keep the defense from checking that chart and wanted to send us to jail on their word for it, the court finally arranged that the defense accountants could see the chart during the noon hour and the judge adjourned an hour earlier for that purpose.

When court reconvened that afternoon the reason for the government's so desperately trying to keep us from checking that chart came out. It was one of the worst balled-up messes I ever saw for a set of figures; so badly balled-up that, in view of the government's effort to keep us from checking it, I think one is warranted in demanding that the department's conduct in regard to it should be investigated by Congress to see if it was not a deliberate effort to put over fraudulent evidence.

Under cross examination the government's accountant admitted that he disregarded specifications in comparing prices, disregarded what points shipments and prices were made from; disregarded whether shipments were spot sales or sales with price date-of-shipment, or over-the-month sales or sales for longer periods. He ignored all the practices of the trade to get his figures to support the indictment.

Figures on Charts 'Garbled'

In presenting the information on direct examination, government counsel caused the witness to say of one company's purchases for instance, that "73 per cent were purchased at or above the low", whereas the figures, inaccurate as they were, showed that 72.5 per cent were purchased at the low and only .5 per cent above the low. This exaggerating of a small fraction was done several times.

Even after I was out of the case and in the closing rebuttal, the government made another stab at offering a garbled set of figures. The very last week of the trial it handed in some figures that were way off. For instance, the government, even though it was plainly marked on the invoices as 62 octane, because the refiner had sold it for 62-65 octane, classed the price with middle grade instead of third grade. Again, in trying to tear down a defense price chart, the government said that some prices on it were incorrect because the refiner had "rebated" a quarter of a cent to the customer. On cross examination this "rebate" turned out to be a commission, not allowed to the buyer but allowed to the sales agent in that territory, and the invoices were so marked.

Then again the government said that the Globe Oil & Refining Co. had bought gasoline from Independent refiners only to turn around and sell it at a loss to jobbers, implying that the purchases were to force the market up. The facts finally forced from the government's witness were that the Globe's plant was shut down part of the time, that the company was also short and that the loss on the sales was due to the Globe having protection contracts with jobbers which it had thus carried out.

Another time the government tried to beg off on its incomplete figures because, it said, it had not gone beyond the documents handed in to the grand jury, as if that excused the government for not intelligently and honestly seeking the obvious facts.

But all through the trial I was impressed with how the government kept away from facts and figures, except what the witness could "recall" from memory. The spare rooms of the federal building at Madison were filled with figures and facts that the government carefully avoided using.

I could not help but wonder what kind of a government is this that wants to send men to jail on anything but the facts? What kind of people are these in the Department of Justice who seemingly do everything they can to keep facts away from the jury? What is one to believe about men who get figures balled up worse than a ten-year-old child would do?

All through the trial the government's representatives did not act like men who were trying to give a square deal to fellow citizens who, up to then, had seemingly lived honorable lives. They acted more like men who were under instructions to send the defendants to jail regardless of methods.

All through the trial government counsel fought to keep out the least bit of evidence that would not help the government's case. I had always been of the opinion that the government should present ALL the facts to the jury and let it decide, not sort out the facts that would incriminate from the facts that would free a man.

A long indictment could be drawn against the government for its misconduct of the case. In fact such an indictment one thinks should be drawn by the American Bar Association and presented to the proper Congressional Committee. The attorney general and the president are promising further "anti-trust" prosecutions. If they have in mind cases similar to this oil case then other business men can expect to have their every act under the codes scrutinized with a suspicious and biased eye and a stretch of the imagination for alleged law violations. If this oil case is any fair sample of the administration's idea of fair play and ordinary honor then whoever thought he had a deal or some approval from the government for an act that otherwise might be on the border line of the anti-trust laws had better start getting his attorneys ready to fight right now.

As it was said at the beginning, this oil case divides itself into three parts and this part that I am now discussing, the government's own conduct in the case, has nothing to do with the original complaint.

It would seem that, had the government wanted to help the complainants, to really do something about their complaint, just the use of a little common sense would have caused the Department of Justice to go over to the Petroleum Administrative Board on June 18th, 1935 the day after the complaint was filed and made inquiry and then to have gone to the headquarters of the P. & C. Committee, which still had some people in it.

It would not have taken long for the department to have informed itself as to what was going on and to have stated its opinion, if it had one, that it thought the actions requested by the Department of the Interior were illegal. In which event the P. & C. Committee could have instructed the Stabilization Committee to stop the buying if the buying program was as effective as the Department of Justice tried to make it out to be. Then the tank car market would have dropped perhaps a few cents, which would have forced the crude buyers to have cut the price of crude oil which the President wanted held at $1 a barrel. That would have passed the buck to the President right then.

Or if the Department of Justice was not in such a hurry, it could have taken an extra day to read the oil papers, because they are pretty good news gatherers. There the Department would have found spread out before it the story of what the young government lawyers called "this conspiracy in all its hideousness."

There the government's dead-eye sleuths would have found a chronological account of how East Texas refiners formed a selling organization to find outlets for their gasoline and of their sales to major companies; there, also they would have found stories about inter-refinery buying in the Mid-Continent.

Particularly would the department have found faithful report each day and each week of the amount of the buying, the effect of the buying and oftimes the prices paid but these prices, the de-partment would

have found, were *NOT* put in the regular price tables of the price reporting mediums but were mentioned in the news reports only. The government's "G-men" would have found that these prices paid by the majors were lower than the market as published by the papers.

But maybe the department did not want to help the oil jobbers who were the complainants but only used them as an excuse to its own ends?

Maybe the department even then had its sleuthing eye turned toward an oil man from Kansas who was being talked of as a presidential candidate to oppose the man in the White House?

The grand jury was called as Alf Landon's boom really began to grow. Some stories are that the indictment was already drawn when the R publican convention was held. It was sprung right after the convention. The indictments were not exploited during the campaign evidently because Landon was nowhere near the alleged crime and besides, if Roosevelt had made use of them, he would have opened up discussion of the whole case regardless of court ethics.

In this event maybe the sign of the Double Cross would have been brought out right then and placed in the White House yard?

Seubert's Statement

CHICAGO, Jan. 22.—In reply to inquiries from the press, Edward G. Seubert, president of Standard Oil Co. of Indiana, commented on the outcome of the Madison trial as follows:

"The issues in the case are largely economic. I believe the government would be the last to assert that there was any intentional or flagrant violation of the Sherman Act. In the last analysis the question involved is simply whether there was a technical violation of the law.

"I am satisfied that on a rehearing before Judge Stone or an appeal to higher courts the situation created by the present verdict will be corrected."

Cummings 'Gratified'

WASHINGTON, Jan. 22.—After news of the verdict of guilty returned by the jury today at Madison, Attorney General Homer S. Cummings commented, "Naturally I am gratified. It is a major victory in the enforcement of the anti-trust laws.

Orders Sunday Shutdown in Texas Fields

(*Continued from page* 9)

erators to keep some wells open on Sunday so as to avoid complete plant shutdown, but such wells must compensate on another day for their Sunday production.

Dramatic Order

This is the most dramatic of all orders dealing with overproduction since martial law closed the Oklahoma City and East Texas fields in the summer of 1931.

No change is made in the allowable factor in the various Texas fields and no top allowable figure is set. The state's allowable at the time the Sunday closing order was issued in round figures, was 1,410,000 barrels daily. On that basis, the reduction of one-seventh would amount to 201,400 barrels daily; but the allowable production in Texas changes each hour. Any new well anywhere adds to the total.

East Texas, producing about 35 per cent of the state's total, has an allowable production at this time of about 494,000 barrels daily. Its proration factor has remained unchanged for many months and the drilling campaign that has been carried on has brought the allowable up. There are 24,350 producing wells in the field, each having base allowable of 20 barrels daily under the marginal well law. Many will not make that amount, but there is little proratable oil in the field. The Sunday shutdown is the best way of cutting East Texas field's output and the same is true of many another area.

No Protests Heard

In contrast to former times, when an order affecting production was certain to be opposed in the courts by somebody—especially was this true of East Texas—no protests were audible on the Sunday shutdown order. Even Lon A. Smith, commission member, who habitually differs with Chairman Clyde V. Terrell and Col. Ernest O. Thompson, had no complaint to make. In fact, he announced his agreement with this order because it was state wide and not merely directed at East Texas, his pet oil field.

Expressions of approval of the order came from Lloyd Wheelock, president of the Texas Petroleum Council, and from D. Harold Byrd, president of the Independent Petroleum Assn. of Texas. The latter commented, however, that the action would be of "little value other than punishing the already suffering Texas independents unless other states and the major companies either shut down or cut off their part of the one-seventh of excess oil."

Charles F. Roeser, president of the Independent Petroleum Assn. of America, who took the lead in the Interstate Oil Compact Commission meeting Jan. 18 in urging curtailment of production, issued a formal statement approving the "movement of the state regulatory bodies to reduce the allowable production of crude petroleum for the purpose of avoiding useless waste."

He did not comment on the method Texas has adopted to effect the reduction. In December, when Sunday shutdown was discussed at the statewide hearing in Austin, Mr. Roeser said he thought it would prove unworkable because too many exemptions would have to be made.

Storage Termed Excessive

"Attention is called . . . to the fact that, as a result of refinery operations, the equivalent of approximately 30 million barrels of excess crude is now in storage in the form of refined products," Roeser's statement continued. "Most of this storage seems to be in the area of the larger refineries. Whether it is the large or small refiners at fault this situation should be corrected.

Thompson Issues Statement

Commissioner Thompson wrote the statement which accompanied the order to shutdown Sundays. He reviewed the events of recent months, said the industry had entered the fall in good condition but that all producing states had pushed production to the limit of the market.

"Now, with the present recession and the lowest consuming season of the winter at hand, strict measures must be taken to defend the gains in ground which the industry has made in the last four years. Texas is leading the way in this defense.

"It should be kept in mind that there are 1141 more operators in the oil business today than there were two years ago. Our policy has been to encourage everyone in the business by preventing overproduction. Today, the little refiner is threatened with destruction because, due to the overproduction of gasoline, he cannot sell his gasoline and cannot continue to buy crude from his producers. When a condition of overproduction continues, everyone in the business will be hurt, the weak being killed first.

"I do not propose to allow overproduction to kill off our independent refiners when the power lies within our hands to save them. All that is needed is time to work off excess stocks of gasoline, which is nothing but crude in finished form . . .

Calls Other States To Join

"I trust that other oil producing states will do their just part in boldly reducing their production so that the efficient, legitimate producers and refiners can be protected and not driven out of business by monopoly. This action is, after all, for the benefit of the consumers, because, if the independent competition is allowed to be smothered, monopoly would then take charge of the oil business and without competition would doubtless make the public pay higher prices for gasoline. It is our duty to protect the consumer and good, active competition insures cheap gasoline.

"Disaster can come from too much production just the same as from a shortage of production. There is no reason for oil production to get out of hand. Texas does not intend that too much oil shall ever be produced in our state when it is not needed. That is the law. It is a wise law and has caused prosperity to come to Texas."

The day following the issuing of the Texas order, the Louisiana Department of Conservation announced its allowable production for February. It set 244,700 barrels daily, a reduction of 11,300 barrels from the January figure. This brings Louisiana closer to the U. S. Bureau of Mines forecast than in several months. The bureau's estimate of crude demand from Louisiana fields for February was 239,400 barrels daily.

Rodessa Field Cut

Northern Louisiana fields took the brunt of the reduction, being cut 10,500 barrels and Rodessa took up 8000 barrels of this. This field's new allowable is 42,000 barrels daily.

New Mexico is the only state to announce a reduction in allowables thus far, but its cut of 4000 barrels daily to total of 103,100 applies to the last half

of January. This state's proration is on a semi-monthly basis.

Reversing the trend toward reduction in allowables, the Arkansas Conservation Board increased the allowable production of the Jones sand wells in the Schuler pool, in Union county, from 400 barrels daily to 800. The reason for the gain, said the board, was the assurance that the local market needed the oil. The allowable production of the Miller county extension to the Rodessa field was also raised 1000 barrels daily to 15,000 barrels. No change was made in the allowable per well. The increase was due to new wells.

The Kansas Corporation Commission will meet Jan. 26 and the Oklahoma Corporation Commission Jan. 28 in hearings to decide upon February allowable in fields in their states. Both agencies are expected to cut production, but not to order Sunday shutdowns.

U. S. Estimates Guide To Output

TULSA, Jan. 22. — Statistics are imposing, but at times fearsome, and a whole column of them, gazed at long enough, will induce spots before the eyes and a ringing in the head.

Omitting, therefore, the long list of figures on allowable production, actual production, increase in stocks and the pointing of the finger at this state or that, the whole present discussion can be brought down to date by saying that, had the U. S. Bureau of Mines forecasts of demand for crude oil been adhered to rigidly throughout 1937, there would not be the uncomfortable feeling that prevails today.

The bureau forecast for the entire year was 1,221,270,000 barrels, as it was issued month by month. The same agency's report on December production has not yet been released, as it normally comes from five to six weeks after the close of the month. However, if December production was approximately the same as November — and that conclusion is reasonable — the total production in the U. S. for the year was about 1,275,074,000 barrels, which was 53,804,000 barrels greater than the federal agency forecast.

The amount of this excess represented in additions to crude oil stocks in the year's time was 15,809,000 barrels. The increase in gasoline stocks, in terms of crude oil equivalent, was near 30,000,000 barrels and right there is 45,000,000 barrels of the excess production accounted for.

Proration By Buyers

No moral is pointed by recital of these figures. Few there were who foresaw last summer that the year would end as it did. A few companies who buy large quantities of oil, four and five months before the year closed, began to ask the state regulatory commissions to reduce allowable production. There was also a ltitle proration by the buyers — purchase of an amount less than the commission of the state permitted to be produced. But these events were described as of local significance only.

The custom spread and today there are a half dozen purchasers buying less than the official allowable. This is prorating the proration. Oklahoma and Kansas, mainly, are hit by this practice. These states are the ones that suffered most from the increases in production in Illinois and Michigan. In the last half of 1937 these two states stepped up their production more than 100 per cent, using December for comparison. In December, 1936, the combined production of Illinois and Michigan was 39,800 barrels and in December, 1937, estimates of output total 82,583 barrels daily.

Oklahoma Lost

Comparing the same months, combined production of Oklahoma and Kansas declined 52,875 barrels. The loss was Oklahoma's, as Kansas was up 1330 barrels daily and Oklahoma lost 54,205 barrels. Thus, the slack provided by Oklahoma's decline was nearly taken up by the two states east of the Mississippi which have flush production.

As early as September the effect of this flush production began to be felt. Pipeline deliveries from Oklahoma and Kansas to refineries in the Great Lakes region and in Ohio began to decline; the result was a cut back in allowable production and even this was not enough in the case of some purchasers who adopted the practice of running less than the allowable production.

25th Year Celebrated

PHILADELPHIA, Jan. 24. — The 25th anniversary of the Oil Trade Assn. of Philadelphia was celebrated with a banquet attended by 285 last week. Officers of the association are Charles D. Jones, president; C. A. Borda, vice president; H. M. Rogers, secretary; James H. Stevenson, treasurer.

Crude Reserves Are Debated At Gov. Marland's Conference

By Telegraph

HOT SPRINGS, Ark., Jan. 25. —Gov. E. W. Marland, of Oklahoma, brought his governor's oil conservation conference to a close here today, with a request that technologists for oil producing states study data submitted at the meeting with the idea of a second conference this fall in advance of the convening of state legislatures.

The objective of the second meeting, he explained, would be to develop greater co-operation among the states and to secure recommendations for uniform conservation and regulation of production.

Six states were represented at the conference, although only three chief executives were present. In addition to Marland, Gov. Carl E. Bailey, of Arkansas, attended the first session, as did Gov. Clyde Tingley of New Mexico.

Dr. Paul H. Price, state geologist, represented West Virginia, Wm. J. Rankin, conservation commissioner and W. F. Chrishol, chief engineer, represented Louisiana, Dr. M. M. Leighton, state geologist, Dewitt Billman, secretary of the Legislative Reference Bureau, and Alexander Wilson, administrative assistant to Governor Horner, attended for Illinois, and Buron W. Musser, represented Utah. Gov. Tingley also was accompanied by Glenn D. Macy, state geologist and Frank Warden, land company commissioner and I. H. Hormer, assistant commissioner.

The morning session today was devoted mainly to a rediscussion of data studied and discussed throughout yesterday's session.

Chart Studied

Most of the time was spent in reaching an agreement on a chart of estimated probable production of crude oil in this country for the next five years.

Participants in the conference spent the first afternoon discussing a series of charts based on a report on "Estimate of Petroleum Reserves of the U. S.," prepared for Governor Marland by Alex W. McCoy, Ponca City (Okla.) geologist.

How rapidly would crude oil consumption increase during the next 20 years? How much of this demand would the industry be able to meet from known reserves, and those discoveries of new reserves anticipated within that period? Discussion speculated on answers to these questions.

McCoy's extensive report was summarized as follows:

1. The total known or proved reserve of crude oil in the U. S. Jan. 1, 1938, is estimated at approximately 13 billion barrels.

2. Of this reserve, 9.6 billion barrels are drilled at present with 3.3 billion barrels known but not drilled.

Total Demand Estimated

3. Total crude demand in U. S. for next 20 years is estimated at approximately 34 billion barrels. The total amount of oil discovered to date in the U. S. is approximately 33 billion barrels. The total amount produced to date is approximately 20 billion barrels.

4. It will be necessary to discover 28 billion barrels of new oil in addition to production from known reserves in order to meet expected demand during the next 20 years. This rate of discovery is equal to the discovery rate in the U. S. since 1924. Discovery rates have declined over 50 per cent during the last seven years, compared with the rates from 1924-1930 inclusive.

5. Average total cost to the industry for delivering one barrel of oil to the pipeline, considering all investment with interest, is estimated at (A) for oil discovered between 1934 and 1938, $1.11, and (B) for oil necessary to be discovered during the next 20 years, $1.89.

Present Reserve Limit

6. Considering no additional development, present drilled reserves are estimated to be capable for supplying demand until November, 1941.

7. Discoveries necessary during the next five years in order to balance supply with demand in 1945 should amount to six billion barrels.

Marland in opening the conference, explained that the greatest problem of the oil industry is future demand and ways to meet it, and that it is the duty of states in which oil is produced to study this problem in an attempt to conserve present reserves, and that the conference of governors had been called to start such a study.

Although reports originally indicated that one object of the conference was to consider present crude oil prices in the light of conservation of reserves, no mention of price was made at the initial session.

20% Cut in Refinery Output Would Bring Stocks in Line

By ALLEN S. JAMES
N. P. N. News Bureau

TULSA, Jan. 22. — Refiners in the U. S. are faced during the first quarter of 1938 with the task of cutting motor fuel production some 15 to 20 per cent below production for the first quarter of 1937, if they hope to swing into April with stocks comparable with those on the same date in 1937.

That prediction is based on the assumption that:

(1) The estimate of 77,429,000 barrels is a fairly accurate total for stocks of finished and unfinished motor fuel in the U. S. on Jan. 1, 1938.

(2) Motor fuel demand the first quarter will not be above five per cent above demand for the same period last year.

It is doubtful if whatever errors there may be in these assumptions will be of sufficient magnitude to change materially the general prediction. The estimated total of finished and unfinished motor fuel stocks is arrived at by the American Petroleum Institute statisticians on the basis of Bureau of Mines figures and those estimates have been reasonably accurate in the past.

Demand Debatable

Some observers predict that, in view of general business conditions especially in the large consuming areas of the east, motor fuel demand will be approximately the same the first quarter of this year that it was the first quarter of last year. Other observers predict an increase of 2 per cent in demand; still others predict an increase of 3 per cent; and in some quarters the prediction ranges up to 5 per cent.

The following table lists the total motor fuel production and demand for the first quarter of 1937 as reported by the Bureau of Mines:

Month	Production	Demand
(Figures in 1000 bbls.)		
Jan.	44,681	33,696
Feb.	42,058	32,000
March	46,214	40,561
Total	133,953	106,257

Assuming that refiners reduce production 20 per cent from these figures for the first quarter of this year, this will cut total motor fuel output for that period to 107,162,000 barrels.

Should demand for the first quarter remain unchanged at 106,257,000 barrels, the net change in stocks for the period would be an increase of 905,000 barrels. Added to the estimated stocks Jan. 1 of 77,429,000 barrels, this would give total motor fuel stocks March 31, of 78,334,000 barrels.

Total motor fuel stocks March 31, 1937, according to Bureau of Mines, amounted to 78,970,000 barrels.

The two stock figures, accordingly would be within 666,000 barrels of each other, with those March 31 this year being the lower.

Another Assumption

Assuming that refiners reduced motor fuel production 20 per cent the first quarter this year, and experienced an increase in demand amounting to a net of 2.5 per cent, stocks of motor fuel March 31 would amount to 75,678,000 barrels, or 3,292,000 barrels under motor fuel stocks March 31, 1937, as reported by the U. S. Bureau of Mines.

Then making one more assumption — that refiners reduced motor fuel production 15 per cent, and at the same time experienced an increase of 5 per cent in demand over the first quarter of last year, motor fuel stocks March 31 this year would be approximately 79,719,000 barrels, or 749,000 barrels above the total March 31, 1937.

Refiners in the U. S. charged a total of 273,563,000 barrels of crude oil to stills in the first quarter of 1937, according to the Bureau of Mines. This is a daily average crude charge of 3,040,000 barrels for the 90-day period.

Effect on Crude Output

Assuming that there is no change this quarter over the first quarter of 1937 in percentage yields of refined products, the refiners accordingly would have to cut daily average crude runs 608,000 barrels, to 2,432,000 barrels for the 90 days in order to obtain a 20 per cent reduction in motor fuel stocks.

It is extremely doubtful, however, if any such drastic cut in runs will be accomplished.

It is generally believed, however, that there will be some sizable reduction in crude runs before the first quarter has ended. Some of the reduction, observers believe, will be voluntary and some will be forced as a direct result of depressed tank car motor fuel prices brought on by the present top-heavy motor fuel stocks situation.

Refiners in some areas, meanwhile, are reported to be taking full advantage of the flexibility in plant operations, and are, in effect, "reworking" some of their third grade motor fuel stocks to increase kerosine and distillate production in order to take advantage of the relatively good kerosine price as compared with the depressed third grade gasoline price. How much this reworking of motor fuel stocks will cut off the total now overhanging the industry is problematical — but every little bit helps.

Started in 1936

The cause of the present condition probably can be traced back to the late months of 1936 and the first two months of 1937. It will be recalled that from June on through the remainder of 1936, except for a virtual balance in December, total demand for U. S. crude was above total production. The result was a total U. S. crude production for 1936 of 1,099,687,000 barrels, as compared with a total demand, including exports, of 1,108,603,000 barrels, according to Bureau of Mines.

Refiners had done a fairly good job of pulling motor fuel stocks down to satisfactory levels, total stocks Dec. 31, 1936, amounting to 60,437,000 barrels.

Then came more intensive drilling early in 1937 with the resultant increase in crude oil production. Daily average crude production for December, 1936, according to the Bureau of Mines, had been 3,152,000 barrels, and for the year 1936 the daily average had been 3,005,000 barrels.

But by the last week in May, 1937, according to the American Petroleum Institute, crude oil production had moved up to a daily average of 3,574,000 barrels, approximately 470,000 barrels daily above the average for December, 1936

Refiners Step Up Runs

Refiners stepped up their crude runs steadily through the first nine months of the year. Motor fuel production naturally was increased the first quarter, then declined through the second and third quarters and started to climb again about the beginning of the fourth quarter. Refiners apparently were anticipating a much better motor fuel demand that actually developed — the business "recession" that began in October was not anticipated. Crude runs stayed up along with crude oil production and top-heavy motor fuel stocks were the result.

The effect these factors had on the over-all petroleum stock picture is obtained from a comparison of the new supply of all oils in the U. S. for the first 11 months of 1936 as compared with the same period in 1937.

The cumulative production of crude oil, natural gasoline, benzol, imports of crude oil and refined products for the first 11 months of 1936 totaled 1,093,329,000 barrels, as compared with a total of 1,279,499,000 barrels for the same period in 1937. This represented an increase of 16.2 per cent.

The demand for all oils, including exports of crude oil and refined products for the first 11 months of 1936 totaled 1,112,756,000 barrels. Subtracting this figure from the total supply gave an indicated deficiency of 19,427,000 barrels.

The demand for all oils for the first 11 months of 1937 totaled 1,227,478,000 barrels, which represented an increase over the same period of 1936 of 10.3 per cent. But it also represented an increase in indicated stocks of 43,021,000 barrels.

Oil Filter, Oil Change Subject Of SAE Session

By Teletype
N. P. N. News Bureau

NEW YORK, Jan. 25.—The question whether oil filters or oil changes are most economical in bus fleet operation remained a disputed question here last night at a meeting of the Metropolitan section of the Society of Automotive Engineers.

At the meeting, mainly devoted to discussion of oil filters, it was generally agreed by user and manufacturer alike that no filter adequately eliminated water dilution and that all would remove addition agents now coming into use as a means of improving oil characteristics. A need was expressed for the development of a standard laboratory test for filters which would correlate with road results.

The determination of length of service from crankcase oil is a matter of individual study of operations and of the used oils, according to G. A. Round, Socony-Vacuum Oil Co., Inc.

A. G. W. Brown, chief engineer for Jamaica Buses, Inc., Long Island, told of satisfactory service with 18,000-mile intervals of oil change. These results were based upon laboratory analysis of oils at the end of this period.

Brown's paper, which was outstanding at the meeting, indicated thorough studies of lubrication problems had been made with the Jamaica fleet. He found filters performed a valuable service in removing some of the contaminants named by Round, but obtained satisfactory service from a simple "home-made" filter element consisting of long fiber waste contained in a bag of hosiery ma-

Sun Oil To Spend $11,000,000 In Refinery Construction in '38

N. P. N. News Bureau

NEW YORK, Jan. 24.—Construction work will start within the next weeks on a $11,000,000 refinery replacement and modernization program adopted by the directors of the Sun Oil Co. The work will involve the company's two chief refineries, at Marcus Hook, Pa., and Toledo, O.

Capital for the improvements is provided within the company from earnings and surplus. "The company has approved for 1938 one of the largest budgets of capital expenditures that it has ever adopted," stated J. Howard Pew, president of the Sun Oil Co.

The improved plants were designed by company engineers and the construction work will be done by the company. The proposed program will adapt the plants to important new refining processes, which will make possible larger recoveries and improved quality of the most valuable elements from crude oil, and at the same time reduce the costs of refining, said President Pew.

It is said the expenditures will be about equally divided between the two refineries and that, when the work at Toledo is finished, the plant there will become a much more important unit in the Sun system than it has heretofore. In announcing the years program President Pew stated:

Mostly For Labor

"Work will be started on these improvements within the next few weeks. Inasmuch as the materials to be used must be produced and fabricated especially for our purposes, it means that practically the entire expenditure will go into wages for labor. About 2,000,000 man-hours of labor will be required in the erection of plant and structures in addition to employment in producing the materials.

"The fact that the company is entering upon this expansion program at this time is evidence of our confidence in the basic soundness and permanence of the American competitive system of economics and our institutions of democratic government, notwithstanding certain temporary political trends which if long continued would inevitably lead to industrial disaster.

"Business and industry are the real sources of employment and guarantors of prosperity. We believe there should be no interruption of the continuous modernization and improvement of plants, equipment and technical processes.

"Only through such progress is it possible to reduce the consumers prices for our products, to increase wages, expand employment and raise the standard of living. Confident that the sound judgment of the American people is and will continue in accord with these principles, the company has approved for 1938 one of the largest budgets of capital expenditures that it has ever adopted."

terial. The filters were replaced at 6000-mile intervals.

The contaminants named by Round included water, soot, lead salts, fuel ends, dust, metal particles and oil decomposition products. Filters were approved by him for all materials except water, which is generally found in largest proportion, sometimes as high as 35 to 40 per cent.

DAILY AVERAGE PRODUCTION IMPORTANT DISTRICTS
American Petroleum Inst. Figures

	Week Ended Jan. 22	Jan. 15
	Barrels	Barrels
Oklahoma City	119,950	121,950
Total Okla.	543,450	543,600
East Texas	492,900	492,250
Total Texas	1,406,200	1,389,500
Rodessa	45,500	44,150
Total La.	250,150	249,600
California	716,800	713,200
E. of Rockies	2,789,400	2,763,700
Total U. S.	3,506,200	3,476,900
Crude Imports	24,710	81,280
Tot. new sup'ly	3,530,910	3,558,180

Pioneer Oklahoma Oil Man Dies

N. P. N. News Bureau

TULSA, Jan. 22.—E. C. Mullendore, president of the Cushing Refining & Gasoline Co., executive of Blackwell Oil & Gas Co., Mul-Berry Oil Co. and other oil companies, died at his home in Cleveland, Okla., Jan. 18.

He was a pioneer Oklahoman, having "made the run" into the Cherokee Strip country in 1893. He obtained a homestead near Blackwell, built a sod house and thus started a career that led to wealth.

He first engaged in the oil business in 1903, when the Cleveland field was discovered.

He is survived by his widow, three daughters and one son. Funeral services and burial were in Cleveland.

Oil Attorney Dies

TULSA, Jan. 22.—Joseph P. Rossiter, former district judge in Kansas, former member of the Oklahoma legislature and for some years attorney for the Prairie Oil & Gas Co., died Jan. 16 at his home in Okmulgee. He was 70 years old.

Gas and Fuel Oil Stocks Decline 500,000 Barrels Past Week

N. P. N. News Bureau

NEW YORK, Jan. 25. — Gasoline stocks continued piling up the past week, while gas and fuel oil stocks declined a half million barrels, according to the American Petroleum Institute. Crude runs to refinery stills declined 21,000 barrels, at reporting plants operating at 78.4 per cent capacity.

The largest change in crude runs was a decline of 43,000 barrels in Texas Gulf plants. Other sizeable decreases were 15,000 barrels at Inland Texas plants and 10,000 barrels at East Coast plants. California plants increased runs 15,000 barrels and Indiana - Illinois - Kentucky 13,000 barrels.

Total motor fuel stocks increased 1,688,000 barrels, standing at 78,035,000 barrels on Jan. 22. The previous week they had increased 1,500,000 barrels. All but one district indicated increases, the one being Louisiana Gulf with a decrease of 105,000 barrels. Increases ranged from 18,000 barrels in Inland Texas to 464,000 barrels in Texas Gulf.

Motor fuel stocks at various locations changed as follows: at refineries, increased 1,980,000 barrels, to 47,621,000 barrels; in transit and terminals, decreased 94,000 barrels, to 23,900,000 barrels; and stocks of unfinished gasoline declined nearly 200,000 barrels, to 6,514,000 barrels.

Gas and fuel oil stocks declined 540,000 barrels in the Texas Gulf district. In the East Coast they were down 293,000 barrels, while California stocks were up 453,000 barrels.

CURRENT REFINERY OPERATIONS

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks: Thousands of Barrels: Total Finished and Unfinished Motor Fuel*		Stocks: Thousands of Barrels: Total Finished and Unfinished Gas & Fuel Oil		Cracked Gasoline Production: % Total Capacity Reporting	Cracked Gasoline Production: Daily Av. Production (Barrels) Week Ended	
		Jan. 22	Jan. 15	Jan. 22	Jan. 15	Jan. 22	Jan. 15	Jan. 22	Jan. 15		Jan. 22	Jan. 15
East Coast	100.0	502,000	512,000	75.0	76.5	19,514	19,124	11,748	12,041	100.0	110,000	109,000
Appalachian	88.4	115,000	107,000	89.1	82.9	3,212	3,128	1,190	1,166	94.6	27,000	25,000
Ind., Ill., Ky.	92.4	442,000	429,000	90.4	87.7	13,486	13,170	6,777	6,796	98.5	140,000	140,000
Okla., Kans., Mo.	84.7	254,000	246,000	66.3	64.2	7,223	7,035	3,573	3,617	90.3	71,000	71,000
Inland Texas	56.6	132,000	147,000	65.7	73.1	2,564	2,546	1,725	1,755	71.7	36,000	38,000
Texas Gulf	95.7	681,000	724,000	85.7	90.8	12,204	11,740	10,429	10,969	98.0	163,000	178,000
La. Gulf	96.6	140,000	138,000	83.3	82.1	2,586	2,691	3,515	3,582	100.0	24,000	31,000
No. La., Ark.	63.7	41,000	39,000	70.7	67.2	490	430	461	476	77.5	9,000	8,000
Rocky Mt.	69.7	46,000	47,000	74.2	75.8	1,896	1,855	699	687	85.4	11,000	15,000
California	90.9	550,000	535,000	73.7	71.7	14,940	14,628	75,526	75,073	98.0	64,000	63,000
Total Reporting	89.0	2,903,000	2,924,000	78.4	79.0	78,035	76,347	115,643	116,162	94.8	655,000	678,000
Estimated U. S. Total (Bur. of Mines Basis)		3,220,000	3,240,000			82,785	80,947	118,133	118,962		720,000	745,000

*Includes stocks at refineries, in bulk terminals, pipe lines and in transit.

Judge's Charge To Madison Jury

(*Continued from page* 13)

or chief executive officer of a company may be found guilty of participating in an unlawful conspiracy if the jury should believe from the evidence that he had knowledge of and authorized or ordered his company's participation, and did nothing more. But you must be satisfied from all the evidence, beyond a reasonable doubt, that he did have such knowledge and did, expressly or impliedly, authorize the doing of the illegal act, before you may convict him.

Grounds For Acquittal

"If you do not find that he did have such authority, or that he did not have such knowledge and did not authorize his company to enter into and participate in the conspiracy, then you may acquit him—must acquit him."

If the jury finds defendants did not have the power to raise spot market prices, and the buying programs were reasonable and not unreasonable restraint of commerce, the charge calls for an acquittal.

"Much has been said in this case about the NRA code for the petroleum industry, and it has been suggested that one of the purposes of the code was to raise the price of gasoline," the charge stated.

"Whether or not such was an objective of the code, the defendants would not be justified in combining with others to raise the price of gasoline, assuming that they had the power to do so, unless their activities in this regard were specifically authorized by the code or approved by the President of the U. S. or the Secretary of the Interior under the NIRA. I instruct you as a matter of law that there is no evidence in this case of government approval which would exempt the activities complained of from the prohibitions of the Sherman Act.

No Government Approval

"Furthermore, as you know, the code and NRA passed out of existence after May 27, 1935, and thereafter even the government officers had no power to approve a combination, such as I have described; the Sherman act was restored to full force and effect, and was again the law of the land.

"Even if you should find that some government officers knew of or acquiesced in such combination and conspiracy, such knowledge or acquiescence would not excuse the violation of the Sherman act, if you find that the law was violated.

"Again, if you find that the defendants combined in a manner and for the purpose described, you should give no weight to the fact that some of these illegal activities may have been considered or arrived at in code meetings, or that the defendant Arnott was called 'chief stabilizer' under the code, or that a committee of the defendants was entitled 'Tank Car Stabilization Committee,' or that any of those matters were brought to the attention of the P. & C. Committee, or that any of the active participants in the combination were paid for their efforts by the P. & C. Committee.

"You may consider such matters only in connection with the issue of reasonableness and only, as I have stated to you, if you should first find that the defendants engaged in the combination and the independent refiners and others co-operating with them, together did not have the power to control the prices."

Matter of Buying

The charge stated; "Even if some of the defendant oil companies endeavored to keep track of the purchases of gasoline, as to amount and price, being made by their competitors, in the East Texas or Mid-Continent fields, and even if they governed the amount and price of their own purchases thereby, this would not be illegal provided they acted independently of each other and not in concert.

"It would have been entirely legal for any defendant oil company, acting alone, to buy any amount of gasoline it saw fit, in the East Texas and Mid-Continent fields.

"The fact that some or all of defendant companies bought gasoline in the East Texas and/or Mid-Continent fields in 1935 and/or 1936, whether in large or small quantities, and whether or not they had bought there before, does not, in and of itself, prove any agreement or understanding between them to buy, either legal or illegal.

"The fact that in March, April, May and June, 1935, the spot tank car price of gasoline in the East Texas and Mid-Continent fields rose and thereafter remained stable until January, 1936, when it again rose, does not, standing alone, prove any agreement or understanding between defendants, either legal or illegal.

"It was entirely proper for the independent refiners in East Texas to sell their gasoline through the East Texas Refiners Marketing Assn. as a common selling agency. No inference unfavorable to any of the defendants could be drawn from the mere fact that some of them purchased gasoline through the East Texas Refiners Marketing Assn., provided they acted independently of each other, but if they acted together, in concert, for the purpose of raising the price as alleged in the indictment, then their activities would be illegal."

Testimony Consistent

Concerning the grand jury testimony of witnesses the charge said, "Testimony given by some of the witnesses in this case when they appeared before the grand jury, was read to them when they appeared as witnesses in this trial. That was done for the purpose of refreshing their memory, and for no other purpose. You will understand that it was not used for the purpose of impeaching the testimony of the witness. The testimony of no witness who has testified here was inconsistent with any of the testimony he gave before the grand jury which was read to him in this case."

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Shall We Build A Practical Aircraft Diesel Engine?

By ARCH L. FOSTER Technical Editor

America is overlooking a bet, aeronautical engineers say by not developing a diesel aircraft engine for transport and other purposes. The German Junkers interests will soon place in service a 2000-horsepower aircraft diesel which will weigh not more than one pound per horsepower, that is, one ton total engine weight.

The German Junkers "Jumo" aircraft diesel is now turning up specific fuel consumptions as low as 0.36 pounds per horsepower-hour, it is said, and the new 2000 horsepower engine will probably operate at as low as a third of a pound per horsepower-hour. In other words, operating at 75 per cent load or at 1500 horsepower output, the engine would consume about 500 pounds of fuel per hour. According to quoted estimates, the best specific fuel consumption figure for gasoline aircraft engines in the immediate future using 100 octane number fuels in 2000 horsepower units is 0.38 pounds, an efficiency lower than the diesel on the order of 15 per cent.

Supercharging has been applied to both aircraft and automotive gasoline engines for some years, boosting the power output of a given displacement by as much as 25 per cent to 50 per cent, according to manufacturers' figures. Now it is being applied to diesels, wherein the air to the cylinders, instead of the air-fuel mixtures of the gasoline engine, is compressed into the cylinder to provide for burning more fuel, which is injected into this compressed and superheated air.

Increased power output of 50 per cent is claimed by diesel engineers for stock engines specially fitted with "blower" type superchargers. Engines designed for supercharging will show even greater efficiency increases. Lower exhaust temperatures, and the use of a second-stage, exhaust driven turbo-blower may, under existing conditions, permit the design of a diesel which will attain higher altitude efficiencies than even the gasoline engine, engineers claim. Also, if the main object is maximum power output per unit size and weight, the 2-cycle diesel will deliver greater power per pound of engine weight than will the 4-cycle diesel, but at greater fuel consumption.

These developments strike right down the refiner's alley on two lines—fuels and lubricants. Already special lubricants are employed in many types of diesels, not so much perhaps to carry the increased bearing loads—though greater film strength is necessary, many diesel engineers claim—as to prevent or reduce ring sticking, engine deposits, etc., which interfere seriously with engine operation. It is claimed that unit bearing loads in these supercharged engines are increased, however, only slightly, of the order of 5 per cent by power increases as high as 50 per cent, the increase being due to supercharging.

These extra loads, by the way, must be carried, and with a good margin of safety—and the refiner must supply the lubricants. Additive agents will doubtless be called more and more into use for the purpose. As engine rotational speeds increase, higher viscosities will become more and more taboo because of the wear and drag effects on the engine. Protection against corrosion and fatigue as well will call for more carefully refined oils, plus inhibitors, etc. The term "assembled oil" may become fitting for the aircraft diesel oil of the future even before it can be properly applied to oils used in other prime movers.

But suitable fuels may be even more a problem. Like the gasoline engine, though somewhat less so, the diesel is temperamental about its "food". The crudes which produce the best straight-run gasoline generally yield the poorest diesel fuel, since the combustion characteristics of fuels for the two cycles are practically opposite.

Refining Technology

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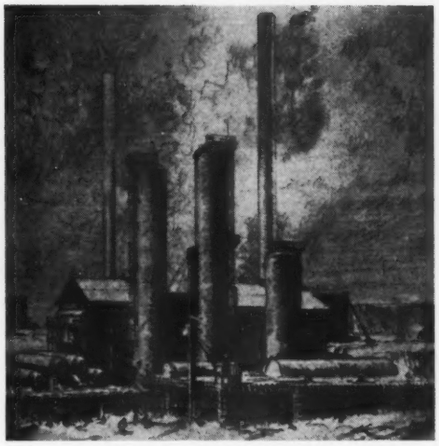

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EDITORIAL APPEARED OCTOBER 28th 1937

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Speaking of Size

The industry, centering its gaze upon the large increase in production of its raw material, its near record in drilling wells and the marvelous technological progress in the finding and recovery of crude oil, may overlook the fact that this oil must be converted into finished products before it enters consumption and that these achievements have been paralleled in the manufacturing division.

The petroleum refiners of the United States have so far this year refined into finished products over 300,000 barrels of crude daily more than in any previous period in the history of the industry.

A 36,000-barrel daily installation of this type is capable of supplying the entire gasoline requirements of the state of Oklahoma, or the aggregate requirements of Arizona, Delaware, Nevada, Vermont, Wyoming and New Hampshire.

Taking advantage of large scale operation, the industry has been able to improve all phases of manufacturing and to reduce costs per barrel despite steady improvements in quality. This explains why the price of gasoline remains low in contrast to the ascending prices of other commodities.

Something of what is going on in the refining di- ... all the refining industry ...

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REFRACTORY SELECTION

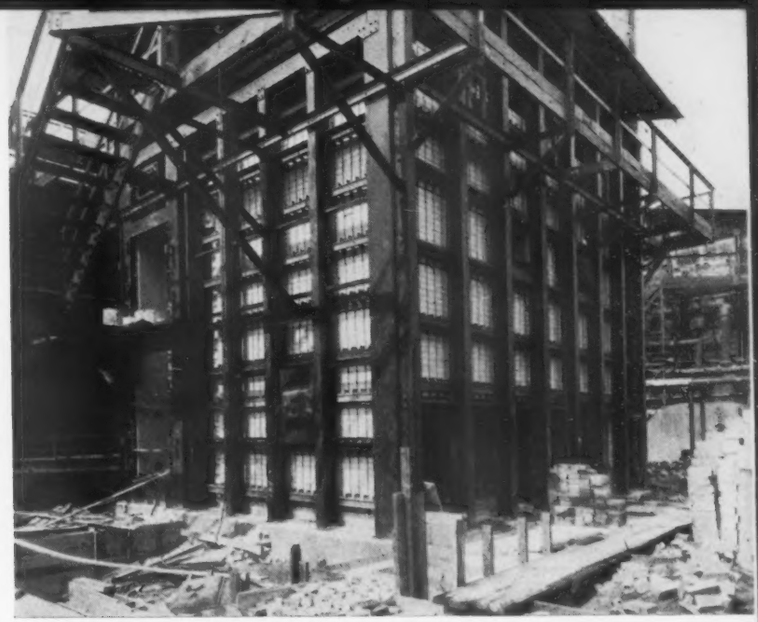

Fig. 1. The supporting structure for refractory brick in a cracking furnace before insulating backing has been added. Photo courtesy M. H. Detrick Co.

732.4

For Cracking Furnace Calls for Compromise

BY M. G. VAN VOORHIS
N. P. N. Staff Writer

THE average refiner probably has little time to consider that even the brick in his cracking furnace have been developed as a result of as much chemical research as has gone into the processes for producing the present high quality gasoline. The number of types of refractories and graduated qualities of each that are now available for furnace construction is an economic study comparable to that of the tube steels that are employed in these furnaces. Selection of refractories has just as many variables to consider. As one writer expressed it, "almost every rule of refractory selection and furnace design is tied to an 'if' or a 'but'. On every hand there is need for judgment, experience, and compromise."

This is quite evident when the factors are enumerated. Among the considerations which influence service of a refractory in a cracking furnace are temperature, continuity of operation, kind of fuel used, rate of heat liberation, velocity of gases in contact with refractories, type of construction, method of firing, impinging flames, ventilation of refractories, and the load imposed upon the lining materials.

Often the determination of the right refractory is more a matter of experience than of measured properties. Generally speaking, more than one quality of refractory is used in the construction of a furnace more often than a single type. The use of a single type, however, has the advantage of simplicity, particularly in replacements, and some engineers prefer to build entirely with a single refractory which will meet the most severe condition provided temperatures are moderate and the severest condition is not greatly in excess of average. Use of two or more types sometimes has the disadvantage of chemical reactions between them unless separated by a neutral bonding material, but this is not true of the two types which are commonly used in cracking furnaces.

Within recent years important improvements have been made in the manufacture of refractories and new types of refractories are available. One of the most important developments has been the power press process. Some years ago, hand made brick gave way to a machine method by which a relatively wet clay mixture is extruded through a die, being cut with tightly drawn wires. Brick are then repressed, usually by hand. Improvement was gained in workmanship and texture as well as in strength, density, and other desirable physical properties with machine methods.

Power pressing now has made possible formation of bricks made of semi-dry mixtures of ground raw materials. Pressures as high as 10,000 pounds can be used and moisture content can be controlled very closely. Selective grain sizing of the mix also contributes to improved quality. Still better workmanship, uniformity of size, more homogenous texture free from laminations and air pockets, greater strength, and lower porosity resulted from the power press method. The development of power pressing has done much to enlarge the market for high-alumina brick through improving their quality. Both hand and extrusion methods are still advantageous under some conditions and will continue to supply refractory brick in relatively small quantities.

One of the difficulties in applying extreme pressures was the appearance of pressure cracks due to entrapped air when the pressure was removed. This has been overcome now in two or three ways, one of which is use of high vacuum during forming. Uniformity is gained by large scale production and continuous operation of tunnel kilns. One large user of brick specifies a dry-pressed brick fired in a tunnel kiln.

Use Two Types of Refractories

Refiners commonly employ high-alumina and fireclay types in cracking furnaces. A "super-duty" fireclay brick is a comparatively recent development with outstanding properties of high refractoriness, constancy of volume, ability to support load at high temperature, and unusual resistance to spalling, which is the "breaking or cracking of refractory brick in service, to such an ex-

tent that pieces are separated or fall away, leaving new surfaces of brick exposed."

Five kinds of refractories fill the ordinary demand of one of the large manufacturers for cracking still service. They are the high heat duty fireclay brick, a normal and a special super-duty fireclay brick, a 50% and a 60% high-alumina brick. These are given in ascending order of softening temperature or fusion point, slag-resistance, and price. Softening temperature is generally compared with that of pyrometric cones of predetermined softening points. Cones are numbered and fusion point is expressed as P. C. E. (pyrometric cone equivalent). Slag resistance refers to the ability to resist chemical reactions which result in corrosion of the refractory lining. In some types of furnaces molten slag and other fluxing agents absorbed by the brick are the principal agents in corrosion but gaseous products of combustion and minute particles carried with gases are contributing factors.

The price range of these five kinds of brick is roughly from $50 to $110 per thousand. Refractory brick may run as high as $1000 per thousand when special properties are necessary. Insulating refractory brick, now coming into commercial importance, is priced as high as $500, although much lower price brick is generally applied when used in cracking furnace construction. Insulating refractories can be used for the complete construction of cracking furnaces but such construction occurs only in isolated instances. Many advantages, discussed farther on, make them adaptable to and desirable for this service. The true cost of refractories is not measured in terms of brick cost per thousand; the really important item is their cost per unit of furnace output. This, of course, can be the only reason for substituting high cost brick for low whether employed as a major construction material or for a special section of wall or arch.

Three states which stand out as producers of high quality and large quantities of fire clays are Pennsylvania, Missouri, and Kentucky. Adding Ohio and California, these five states produce 75% of this country's fire clays. However, fire clay is mined in at least 30 states, among which are Colorado and Maryland where quantity is relatively small but quality is high. The discovery of diaspore in Missouri in 1917 is given considerable credit by one authorty for this state's leading position. The source of refractory brick is usually determined to a large extent by distance shipped or freight rates which apply.

Returning to refractory properties, the five named kinds of refractories in common use in cracking furnaces are tabulated herewith in ascending order of alumina (aluminum oxide) content. High-alumina brick has been defined as a type which contains more than 47.5% alumina. Refractories with 70%, 80%, and even higher are available but one manufacturer finds that 60% is generally as high as is demanded for cracking furnace construction.

Chemical analysis of all five refractories show constituents to be mainly the oxides of aluminum and silicon which make up around 95% of the brick. Small percentages of the oxides of titanium, iron, magnesium, and calcium are present in descending order of quantity.

The accompanying table gives a general idea of where to find the highest qualities relative to the group. Refractoriness and slag resistance improve with alumina content and temperature of burn. However, fireclay brick have some properties rating higher than the two high-alumina brick. This is particularly noticeable in the special super-duty fireclay brick. In strength, both cold and hot, resistance to spalling, and constancy of volume at high temperature, this brick stands out. The porosity rating shows it to be of dense structure contributing to strength and heat capacity. With tables of refractory properties giving absolute values, selection of refractories would be much simplified.

Other types of refractories are silica brick, magnesite, and chrome brick. Each has special qualities which adapt it to special service. The silica brick has a little lower softening point than the lowest in the table but it rates high in high temperature strength and resistance to spalling if kept above 1110° F. It also has a high resistance to acid slag attack. Thermal expansion is considerable up to 1110° F. but negligible above that temperature. Its thermal conductivity is 25% higher than that of high-heat duty fireclay brick. Price of silica refractories compares with fireclay types.

Thermal conductivity is somewhat higher likewise in chrome brick and a refractory developed by one of the large manufacturers and known as Forsterite. It is particularly high in magnesite at ordinary cracking temperatures. Forsterite, which is a combination of magnesia and silica, is as strong as silica brick at high temperature. These properties of other available refractories are mentioned to contrast with refractories normally used for cracking furnace service.

Not all of the tabulated properties have test methods standardized by the American Society for Testing Materials. Test methods have been published for porosity and permanent volume changes, chemical analysis, pyrometric cone equivalent, spalling, both thermal and structural, and strength. Specifications have been issued also for marine and stationary boiler service. An objection which one refinery engineer finds with these tests is the wide range which is allowed in the various properties of a given

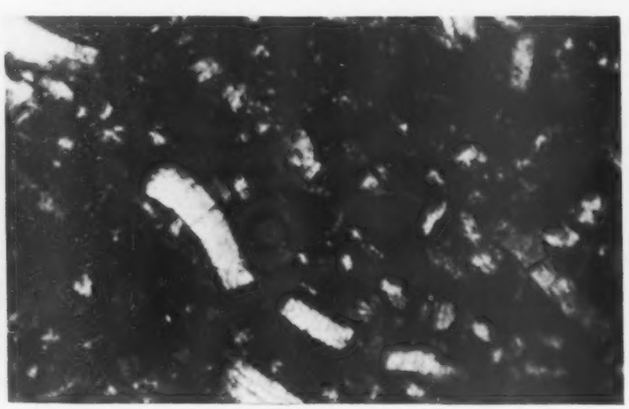

Fig. 3. A microphotograph of kaolinite showing its characteristic flaky crystals stacked together in worm-shaped "books"

Fig. 4. A microphotograph of diaspore, produced only in Missouri Diaspore is a natural high-alumina clay

standard. Users sometimes are inclined to narrow these down, usually to the preferred end of the range in specifying their wants.

Competition, of course, plays an important part in supplying consumers demands. It is natural too that no two refractory manufacturers corresponding products are exactly alike and no two cracking furnaces have identical conditions of operation even if identical in construction. Refractory engineers point out that the correlation of laboratory tests and service records is being studied by the best informed interests in the country, including both producers and consumers of refractories. They see no reason to believe that varibility of properties within the ranges allowed by A.S.T.M. standards produces measurable improvements in service. It has been shown also that the improvement of one property is often done at the expense of another.

Combustion Gases React on Brick

Various furnace gases have deleterious effects upon some kinds of brick. As an illustration, the action of carbon monoxide at 790° to 880° F. caused by catalytic action of traces of oxides of iron, can result in the deposition of sufficient carbon to disintegrate brick. Sulfur dioxide, natural gas consisting essentially of methane and ethane, and hydrogen, all have their peculiar effects upon refractories at certain critical temperatures.

The use of acid sludge as fuel is most serious as regarding corrosive slags while natural gases are relatively mild. Use of oil and petroleum coke as well as sludge make the service more severe than in steam boiler furnaces. Tests conducted by the American Refractories Institute have shown that treatment with sulfur dioxide caused no change in crushing strength of a high alumina refractory under the conditions of test that carbon monoxide treatment produced a loss of 6% in crushing strength and chlorine of 5%. These losses were small as compared with several other types of refractory.

The disintegrating effects of cracked natural gas have been studied and results were said to be "not unlike the carbon monoxide reactions." Greatest effects were obtained when the cracking temperature was above 1400° F. and when the temperature of the brick was in the range of 900-1500° F. Hydrogen treatment failed to cause disintegration except in the case of chrome refractory. The action of the complex hydrocarbons, resulting from cracking natural gas, offers an explanation for disintegration of refractories in some industrial furnaces.

It is only within the last few years that the advantage of using insulating brick as furnace lining has been recognized. The more common practice is to back up refractory walls, which are not particularly good insulators, with materials such as diatomaceous earth, expanded mica, monohydrated bauxite, rock wool, and crushed fire brick.

There are several claimants for credit of having supplied the first insulating refractory brick. One executive

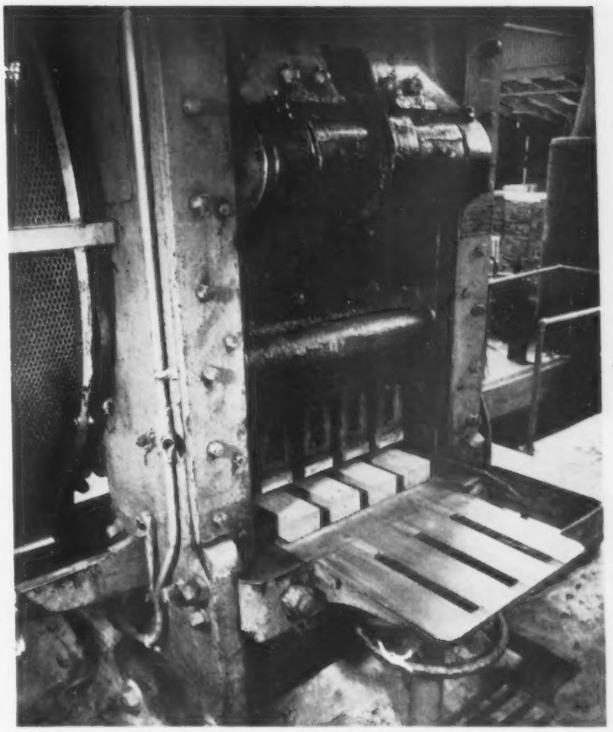

Fig. 2. The power press method of molding refractory brick is now the leading method. The brick shown have just been ejected from the mold. Photo courtesy of A. P. Green Fire Brick Co.

stated his company supplied some brick of this kind 25 years ago. Several companies have worked on the development and now are supplying this type of refractory brick. The Babcock-Wilcox Co. has been given considerable credit mainly for the fact that it has led in pushing the product into wide commercial use in the past half dozen years. Although outside of its principal line of business, the company gave financial backing to the development of an insulating refractory made with pure sedimentary kaolin which produces a snow-white brick.

Other manufacturers employ first or second grade fire clay which has less shrinkage and may have a relatively lower burning temperature when temperatures of service are high. Porous bricks are made also from ganister and some work has been done on magnesite.

Kaolin is ordinarily considered the typical "clay substance." Kaolinite, the chief constituent of the kaolin brick, is a mineral consisting theoretically of 39.5% alumina, 46.5% silica, and 14% combined water. Recently it has been found to exist as three distinct minerals ex-

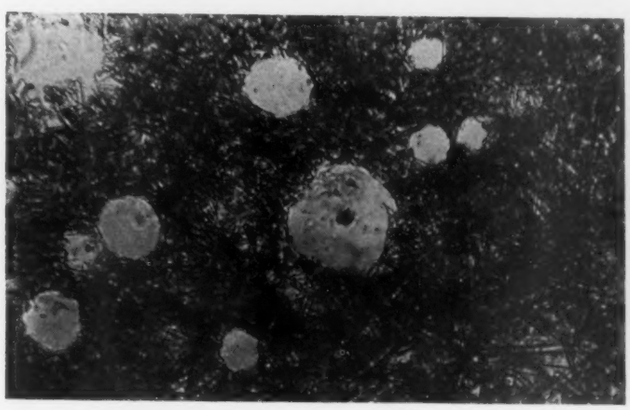

Fig. 5. Mullite needles developed in a fireclay are shown at high magnification. They are very important with respect to quality

Fig. 6. In super-duty flint clay the mullite needles are smaller, more numerous, and thicker-set in the interstitial glass than ordinary fire clay

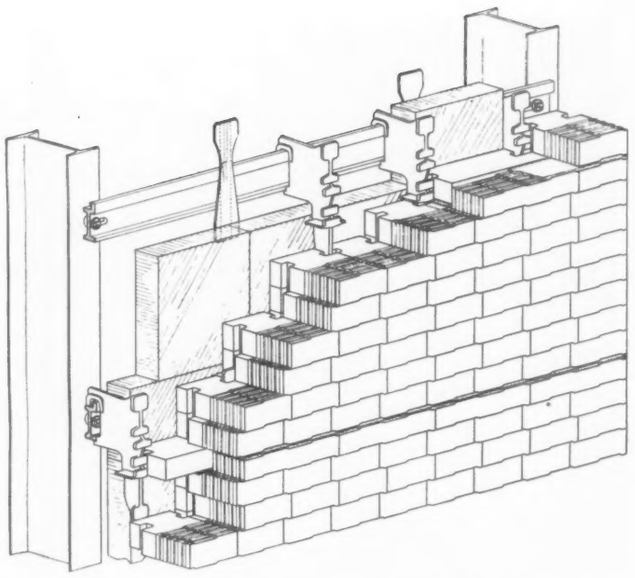

Fig. 8. A detail drawing of Detrick construction with insulation showing the staggering of brick and their corrugations

hibiting variations in particle size and other physical properties. Mica and quartz are the most common accessory minerals.

The use of insulating fire brick is considered by some as the most important development in furnace construction in the past decade. It has produced remarkable fuel savings in intermittent furnaces but not in continuous furnaces, it is said, a fact which limits its ultimate field of application. Economy in continuous furnaces may result from lighter weight construction and reduction in materials. Supported walls of insulating firebrick weigh one-half to one-third that of fireclay. Their light weight, resulting from a porous structure, makes feasible panel assembly bolted to steelwork. Thermal conductivity is reduced to a third of that of fireclay brick also, being roughly proportional to weight.

At high temperature the size and shape of pores is important. Fine pores are best. Some light but coarse structure brick have shown conductivities nearly as high as average fireclay brick. One authority states that too much emphasis has been placed on mechanical strength because insulating fire brick seem fragile compared to the usual brick. He adds that unless mechanical vibration or abrasion is severe, bricks of low strength have shown no inferiority to strong ones in service; in fact weaker structure sometimes withstands spalling better.

One very valuable property of insulating fire brick is low heat storage capacity. This allows the furnace to be brought quickly to working temperature and, in cracking stills, this has some value in prevention of coking the tubes both while starting up and during emergency shut downs. Fuel saving is more important where intermittent operation is the practice.

Low thermal conductivity allows thinner walls which lower construction costs but greater leakage of air through them and into the furnace is likely. Insulating firebrick increases the temperature uniformity in furnaces for two reasons, it has been pointed out. High surface temperature makes heat interchange by radiation large. As the temperature drop along the path of gas travel under balanced conditions is proportion to heat loss from the furnace walls, insulating brick is of considerable assistance. Heat conduction parallel to the wall face toward doors and other openings is minimized. Efficiency of combustion is increased by high surface temperature. The question of temperature uniformity is a controversial one, however.

Insulating fire brick can be used only under clean heat conditions. It lacks resistance to slags, abrasion, and vibration. Resistance to spalling is generally low, particularly at high temperatures. However, some oil stills have been in service three years without any signs of failure, it is said. Suspended arches are economical because very light supports are required.

Suspended Construction Universal

Suspended walls and arches have come to be standard practice in the construction of cracking furnaces except in the smaller than average furnace. Several patented types of construction are being marketed by companies who specialize in designing and constructing various types of industrial furnaces. Some companies build more than one

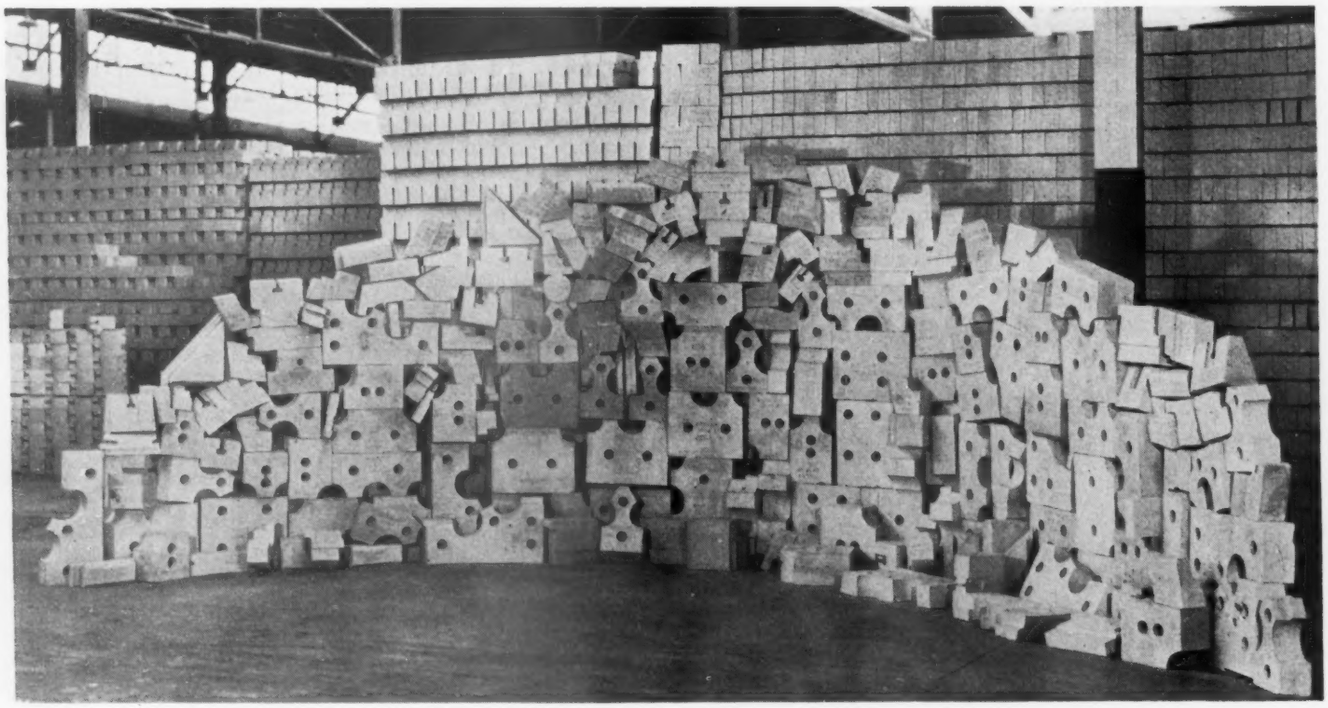

Fig. 7. This group represents one each of the shapes on a part of one order for A. P. Green special shapes

Refiners ARE RAPIDLY BECOMING Salt Conscious

The presence of salts in crude charging stocks is not a new condition. It has existed for many years. What is comparatively new is the discovery that, (1) more of the salts in these crudes settle in tube stills and refinery equipment due to the use of increased temperatures and pressures in modern cracking procedure; (2) salts are the cause of many operating difficulties previously attributed to other sources; and (3)* salt problems are costing the refining industry millions of dollars annually.

When such a condition is clearly evident it immediately becomes a subject of great concern. It merits the undivided attention of refinery executives—and is getting it. Refiners, for good cause, are rapidly becoming salt conscious.

Petreco has delved deep into salt problems during the past few years, and this extensive research has developed many facts of great importance to the refining industry. These developments and the interested cooperation of the Petreco engineering and laboratory staffs are available to refinery executives on request, without cost or obligation.

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4. The deleterious effects of salts on refined and residual products.

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ELECTROMATIC DE-SALTING PROCESS

Comparative Ratings of Refractory Brick Supplied by One Firm for Cracking Furnaces

	High Heat Duty Fireclay Brick	Super-Duty Fireclay Brick		High-Alumina Brick		
		Normal	Special	50% Al_2O_3	60% Al_2O_3	
Al_2O_3 content	38–42%	40–45%	40–45%	50%	60%	
P. C. E. value	32–33	33–34	33–34	34–35	36–37	
Softening temperature	3090–3175	3175–3200	3175–3200	3200–3245	3290–3310	
Porosity	2	1+	1—	3	3+	1—lowest
Modulus of rupture—cold	3	3—	3—	2	1	1—highest
Crushing strength—cold	2	2	1	1	1	1—highest
Resistance to spalling	2+	1—	1+	2—	2—	1—highest
Subsidence under load at high temperatures	4	2	1	3	2	1—lowest
Slag resistance (acid sludge and oil ash)	5	4	3	2	1	1—highest
Constance of volume at high temperatures	3	1	1	2	2	1—highest
Heat storage capacity	3+	1	1	3—	2	1—highest
Thermal expansion, thermal conductivity	1	1	1	1	1	No appreciable difference
Price—F. O. B.	$51.30	$64.60	$86.45	$86.45	$110.30	

type of wall and arch. The several types of construction involve the use of special shapes of brick or tile. One, for example, employs tiles with corrugated surfaces which mesh together and are so designed that the longitudinal joints in an arch and the vertical joints in a wall can be straight or offset. Advantages claimed for this design are that pieces loosened due to cracking or spalling will be held in place and any possibility of gases or flames working through the joints is reduced as well as preventing air from leaking into the furnace.

All companies try to minimize the number of shapes required in order to keep costs low and simplify construction and maintenance. Walls are suspended in groups or single units to eliminate cumulative loading and squeezing of refractories. The structural supporting members take the load so that the weight on brick at the bottom is no greater than near the top.

One company stresses a design which is claimed to have no metal "buried" within the refractories. Every portion of the supporting metal is exposed to cooling air. This design uses box castings which are said to be stronger and to provide more area for cooling air even with insulation applied. A feature of a third style of construction is the simplicity of replacing wall block without disturbing any neighboring block.

Revise Oil Map of Texas

All of the oil and gas fields and known salt domes of Texas are said to be shown on the revised 1938 edition of Zingery's oil map, just published. In addition, the map shows fields in eastern New Mexico, southern Oklahoma, southwestern Arkansas and the western edge of Louisiana. Included on the map is an alphabetical index of fields and counties in Texas, and a similar index of fields for Arkansas and Oklahoma.

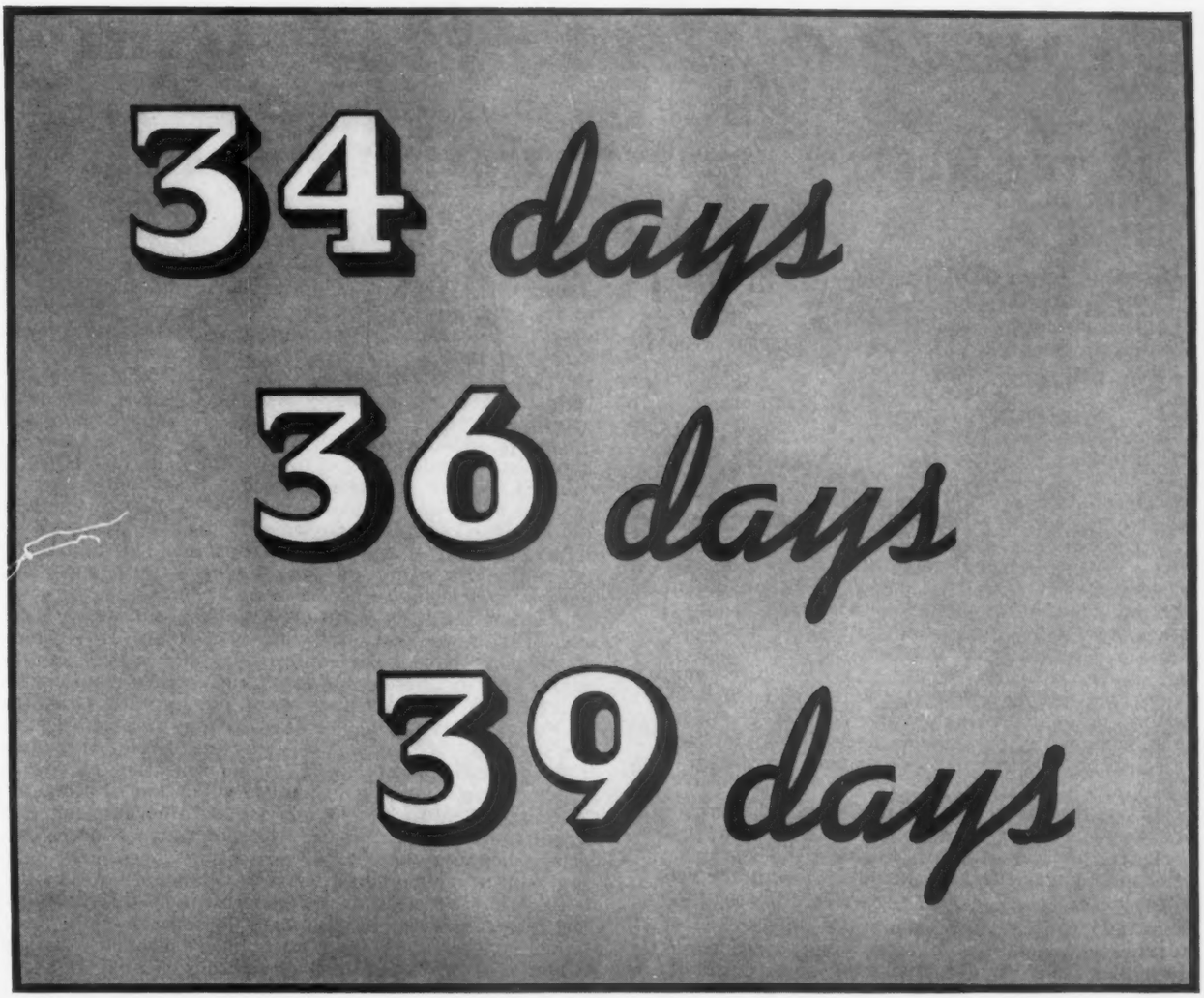
The map is to a scale of 25 miles to the inch, the whole map being about 30 x 30 inches. Oil and gas fields are in color. The map is available at $1 from the Zingery Oil Map Co., Fair building, Fort Worth.

New Publication

Geology of the Muskogee-Porum district, Muskogee and McIntosh counties, Okla., by Charles W. Wilson, Jr., U. S. Geological Survey, and Norman D. Newell, Oklahoma Geological Survey.

This report is published as Bulletin 57 under co-operative arrangement between the Oklahoma survey and the U. S. G. S. It deals with structure and stratigraphy of an area which contains several oil fields. Other resources of the two counties are described.

Fig. 9. The principle of independent replacement of facing tile is a feature of Bigelow-Liptak type of furnace wall construction as well as elimination of cumulative loading



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Graphic Analysis of Hydrocarbon Oil

Sulfuric acid analysis of oil is improved by successive extractions of higher acid concentrations. C. H. Fisher and A. Eisner, Ind. Eng. Chem., Anal. Ed., Aug. 15, 1937, p. 366.

Based on changes in volume and physical constants that accompany successive extractions of an oil with sulfuric acid solutions of increasing concentrations, a new graphic method of characterizing hydrocarbon oils has been developed. Changes of the residual oil in density and refractive index or in their functions, specific refraction and refractivity intercepts, are plotted against volume or per cent by weight of the residual oil.

The density and refractive index rise to maximum values at the point of complete olefin and incipient aromatic removal. Beyond this point the values fall as the aromatics are removed, becoming approximately constant when the residual oil consists only of saturated hydrocarbons. The olefin content is indicated by the volume change to the point of maximum values for physical constants, the aromatic content by the volume change from maximum physical constant to the point of complete extraction of aromatics.

Whether or not the points of maximum and minimum physical constants always indicate the olefin and aromatic constants precisely, this method affords a good characterization of neutral oils and should be useful for comparative purposes.

The method consists in washing the oil successively with sulfuric acid solutions of increasing concentration and determining each time the volume, specific gravity, and refractive index of the unsulfonated oil. In the older type of analysis use of a single concentration of acid as olefin reagent causes dissolution, polymerization, condensation with aromatics and, for some unreactive olefins, no attack at all. Another advantage of the graphic analysis method is that the nature of the constituents, as well as the quantities, is indicated.

An inspection of the curves makes it possible to draw conclusions as to the physical constants, and hence the characteristics of olefins, aromatics, and saturated hydrocarbons in the oil. For example, the curves may be quite different in shape and position although the maximum and minimum physical constants occur at corresponding volumes of residual oils.

* * *

Olefin and Aromatic Determination

Best method for determining olefins and aromatics in oil is sought through study of reactions. C. H. Fisher and A. Eisner, Bureau of Mines R. I. 3356, Dec. 1937.

Previous work in the determination of olefins and aromatics in hydrocarbon oils has been found not to be in good agreement. A general study was made of this type of analysis in which reactions were investigated under commonly used conditions employing sulfuric acid. Results of the comparative study indicated that although no one method was completely satisfactory, the Kester and Powle procedure* in which olefins are determined with 80 per cent acid, gave the most accurate results.

In most cases, treatment of the neutral oil with 80-90 per cent sulfuric acid, followed by distillation to the original endpoint to remove olefin polymers, is recommended for estimation of unsaturated hydrocarbons. The distillate thus obtained, is taken as olefin-free oil and used in later stages of the analysis. Aromatic hydrocarbons are generally determined in the olefin-free oil by sulfonation with 96-100 per cent acid, the hydrocarbons not attacked and removed as water-soluble sulfonic acids being considered as saturated hydrocarbons.

The Kester and Powle method is satisfactory for neutral oils of the type derived from coal if only small quantities of unreactive olefins are present. Where more unreactive olefins are present, error would increase. Although modifications failed to give completely satisfactory analyses, a new graphic method** was found to give accurate olefin and aromatic contents of the two synthetic solutions under test. The graphic method is based on changes in volume and physical constants that accompany successive extractions of the oil with sulfuric acid solutions of increasing concentration.

Claims that the addition of silver sulfate or boric acid to sulfuric acid gives olefin reagents of enhanced effectiveness have been confirmed. Other undesirable reactions are promoted, however, such as the sulfonation of aromatics and condensation of olefins with aromatics.

Sulfuric acid of concentrations up to about 84 per cent may be employed with only negligible sulfonation of aromatics. However, acid of concentration as low as 82 per cent was observed to cause alkylation of aromatics. Concentrated sulfuric acid was found to be quite effective in sulfonating 15 aromatic hydrocarbons. Benzene and certain benzene derivatives possessing large and bulky alkyl substituents offered most resistance in sulfonation. A sulfuric acid solution of concentration up to 98 per cent was observed to sulfonate aromatics with ease. Higher concentrations and Kattwinkel's aromatic reagent (96 per cent acid containing phosporous pentoxide) should not be used as reagents since such solutions remove considerable amounts of saturated hydrocarbons. Two washings with about three volumes of 98 per cent acid (or one washing with 96 per cent acid followed by treatment with 98 per cent acid) are recommended, since all aromatics are removed without attacking more than traces of saturated hydrocarbons.

*Ind. Eng. Chem., Anal. Ed., vol. 3, 1931, p. 294

**Ind. Eng. Chem., Anal. Ed., Aug. 1937, p. 366.

* * *

Rectifying Column Operation

Nature of rectifying column packing material has no effect on efficiency, liquid hold-up, and through-put. A. R. Glasgow, Jr., and S. T. Schicktanz, Natl. Bur. Stds. Research Paper, RP1049.

In a rectifying column 2.6 cms. in diameter packed with balls from 0.2 to 0.4 cms. in diameter, the heat conductivity and the nature of the material of the packing have no effect on the efficiency of separation, liquid hold-up, or through-put of the still. Both efficiency and hold-up have been found to be directly proportional to the total surface area exposed in the packed column.

Tests were made using glass, lead, and copper balls. The relationship of efficiency to surface area is expressed in terms of number of theoretical plates (n) to surface area of the balls (S) and to the internal surface of the column:

$$n - 1 = 0.0030 (S - s)$$

Hold-up (H) in cubic centimeters is expressed:

$$H = 0.0032 S + 38$$

The apparatus, constructed of Pyrex glass, consisted

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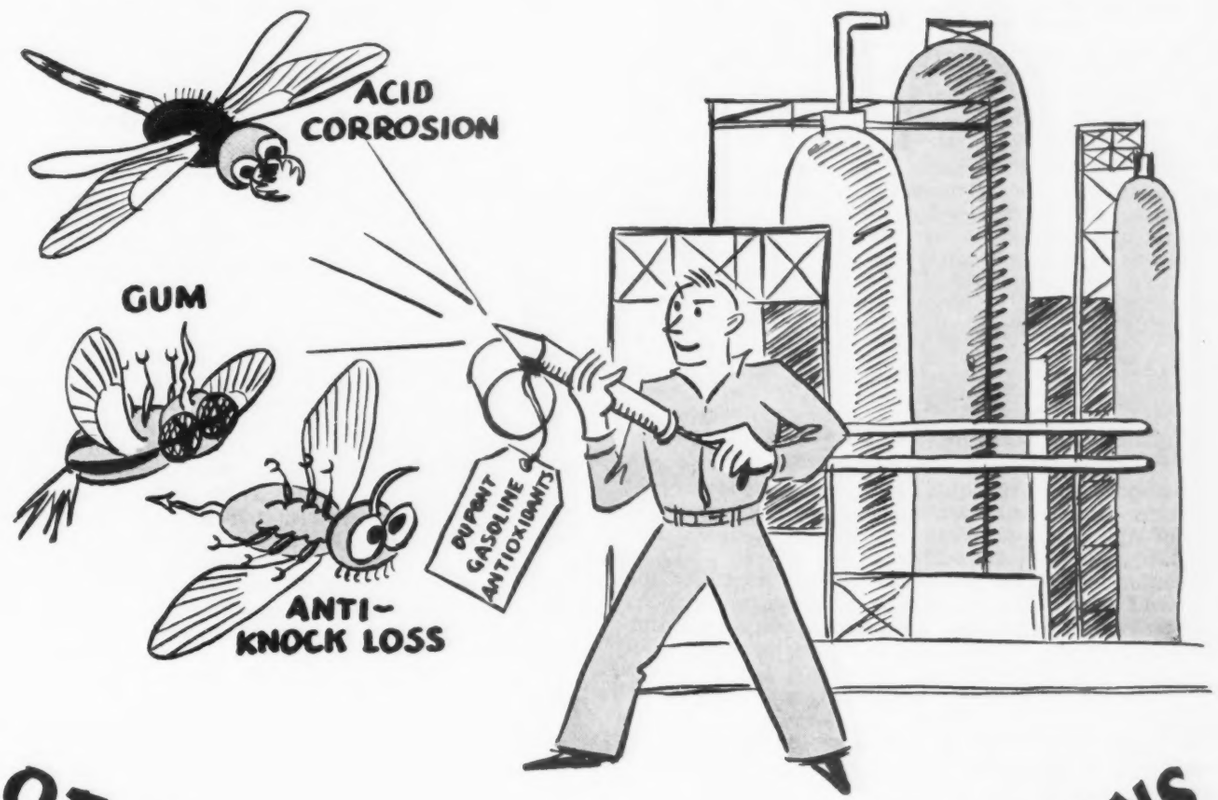

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GASOLINE ANTIOXIDANTS

of a 1-liter still pot topped by a column 140 cms. long with internal diameter of 2.6 cms. Adiabatic conditions were maintained by surrounding the column with a vacuum-jacketed sleeve. Ball type packing was selected on account of ease of computing surface area and smallness of area of contacts. Sizes of glass balls were 3.80 and 2.95 mm. diameter. Copper balls were 4.00 mm. in diameter and lead balls were 4.05 and 2.05 mm. in diameter.

The test mixture used in calculating the number of theoretical plates consisted of the binary system of benzene and ethylene chloride. The number of theoretical plates was evaluated by the graphical method of McCabe and Thiele, the composition of vapor and liquid being obtained with the still operating at optimum back pressure. In order to determine the hold-up when operating the still at optimum back pressure, the two-component mixture of benzene and dibutyl phthalate of known weight relationship was employed.

On distillation, the vapor in the pot and the vapor and liquid in the column consisted essentially of pure benzene. A sample of the liquid in the pot was withdrawn while the still was operating under total reflux and a new weight relationship was determined. The weight of benzene associated with the total weight of dibutyl phthalate before and after distillation represents the hold-up of benzene.

* * *

Equilibrium Data in Mercaptan Recovery

Equations correlate equilibrium data in recovery of mercaptans from naphtha fractions and aid graphical design of equipment. R. W. Crary and M. M. Holm, Ind. Eng. Chem., Ind. Ed., Dec., 1937.

Equations useful in the design of equipment for the recovery of mercaptans from cracked naphtha fractions have been developed. They give the mercaptan sulfur retained by naphtha fraction and that held by causic solution and steam at any given equilibrium as determined by quantity of caustic solution, vapor pressures, molecular weight and density of naphtha.

The equilibrium curve for absorbing mercaptan from naphtha with caustic solution is:

$$X_n = K' \left(\frac{X_c}{a - 1.25\, X_c} \right) \qquad (1$$

where

$$K' = \frac{40 d P_w}{P_r M K}$$

and K is the equilibrium constant of the reaction.

The equilibrium curve for stripping mercaptan from caustic solution with steam is:

$$Y = \frac{40}{18K} \left(\frac{X_c}{a - 1.25\, X_c} \right) \qquad (2$$

In both equation (1) and (2) the symbols have the following meanings:

X_n = mercaptan sulfur per gal. of naphtha at equilibrium (lbs.).

X_c = mercaptan sulfur per gal. of caustic solution at equilibrium (lbs.).

Y = mercaptan sulfur per lb. steam at equilibrium (lbs.).

a = NaOH per gal. of sulfur-free caustic solution at equilibrium (lbs.).

P_w = vapor pressure of water over caustic solution (lbs./sq. in. abs.).

P_r = vapor pressure of pure mercaptan (lbs./sq. in. abs.).

M = av. mol. weight of naphtha.

d = density of naphtha (lbs. per gal.).

In plotting calculated values of both X_n and Y against X_c a close agreement between the data and the calculated equilibrium curve indicated the validity of the algebraic form of the two equations. Such plots can be used directly in graphical design by the method described by Evans (Ind. Eng. Chem., 26, 860, 1934) and by Walker, Lewis, and McAdams ("Principles of Chemical Engineering", 2nd Ed., McGraw-Hill Book Co.). The method involves only the addition of operating lines on the two plots.

Operating lines are fixed by the inlet and outlet mercaptan concentrations and by the number of theoretical plates applied to the equilibrium curve. The stoichiometric units employed result in straight operating lines. In view of practical limitations on the height of the treating tower, it is probable that not over two or three theoretical plates should be used. The slopes of these operating lines give the required caustic circulation rate and steam rate.

* * *

Analysis of C-4 Hydrocarbons

New method for determination of butenes in refinery gases is more accurate and takes less time. W. A. McMillan, Ind. Eng. Chem., Anal. Ed., Nov. 15, 1937.

Improvement in the accuracy of determination of butenes in refinery gases can be obtained by separation of two cuts by exact low-temperature fractional distillation. The first cut, containing isobutane, isobutene, and 1-butene, is hydrogenated over a nickel catalyst to obtain total unsaturation and the isobutene is then determined separately by reaction with anhydrous hydrogen chloride gas.

The second cut, containing all the *n*-butane and 2-butenes, is also hydrogenated for total unsaturation and the residual gas is condensed unto a bulb and treated with bromine at low temperature. The dibromides are left as residue on warming the mixture and are determined by measurement of refractive indices. All the steps except the last are accurate to at least $\pm$ 0.15%.

In order to obtain such accuracy it was necessary to separate the four-carbon group from the remainder of the gas by accurate low-temperature fractional distillation. This step had previously been worked out to the desired accuracy but the succeeding step of separating the four-carbon group into two groups had not been worked out completely for gases containing olefins. The method which was developed required only that a measured volume of dry hydrogen chloride be mixed with a measured volume of hydrocarbon gas containing isobutene and the resulting mixture be condensed and then revaporized. The contraction in volume is a direct measure of the isobutene present. The total time per analysis averages less than 15 minutes.

In those analyses where only the isobutene is required, it can be determined directly on the original gas with the same accuracy providing no pentenes or higher homologs are present having tertiary carbon linkages. However, in that case, the gas should be freed from hydrogen sulfide by soda lime and dried by calcium chloride.

* * *

Titration of Oxidized Oil

Electrometric titration method for determining acid contents in oxidized oil simplifies procedure. A. R. Rescorla, F. L. Carnahan, and M. R. Fenske, Ind. Eng. Chem., Anal. Ed., Nov. 15, 1937.

The very weak acids present in oxidized petroleum oils are titrated with difficulty by most methods. An electrometric method using tungsten-platinum electrodes and a direct-reading amplifier has been developed for the estimation of acids in oxidized petroleum oils. Oil to be tested is dissolved in a mixture composed of equal parts by volume of isoamyl alcohol, benzene, and carbon tetrachloride and saturated with lithium chloride. A base prepared by dissolving sodium in isoamyle alcohol was found superior to one prepared from potassium hydroxide and isoamyl alcohol.

Such good solvents as benzene, chloroform, or carbon tetrachloride are poor conductors. Addition of a saturated solution of lithium chloride in ethyl improved conductivity but lowered solvent power. With the above named combination it was found possible to dissolve com-

pletely an oil containing 0.4% of sludge in two volumes of the solvent. In titrations six or more volumes of solvent to one of oil were used.

After the amplifier is set in operation, time is allowed for the tubes to reach equilibrium. Electrodes are then prepared, four grams of oil put in the glass container followed by 30 cc. of solvent. Contents are stirred and current across electrodes is adjusted to 10 milliamperes. Addition of base is made in 0.1-cc. portions. Titration is conducted until a sharp increase in current is noted. Time required is about one-half hour.

Results for pure organic acids dissolved in solvent are reproducible within 0.2%. The average difference between observed and calculated values is 7%.

Oil Economics Session Feature of A.I.M.E. Meet

CLEVELAND, Jan. 21.—Featuring the sessions of the petroleum division of the American Institute of Mining and Metallurgical Engineering at the 148th meeting in New York, Feb. 14-17, will be an economic program on which four papers will be presented.

John Gill and E. T. Knight, Atlantic Refining Co., have collaborated on the subject of "What are the Economic Uses of Petroleum?" which will be first on the Thursday morning program. "An Equilibrium Theory of Petroleum" will be presented by Joseph E. Pogue, vice president of Chase National Bank. An associate of Mr. Pogue, N. D. Fitzgerald, will then discuss "The Market for Oil Shares in 1937." Finally, the "Administrative Problems in the Control of Economic Domains" are to be discussed by Economist Alexander Sachs.

The customary symposium on oil production is scheduled for Wednesday, the domestic reports by states being in the morning and the reports of foreign countries in the afternoon. Promise of an extremely interesting joint session on geophysical education Tuesday afternoon has been made. Other sessions on geophysical methods of exploration are announced for all day Tuesday and Thursday, the subjects relating directly to oil being scheduled for Thursday afternoon.

J. J. Jakosky, technical director of International Geophysics, Inc., will speak on the subject of "Electrical Prospecting for Oil Structures." R. H. Durward, a geologist and magnetometer specialist, will describe "The Use of Magnetic Data in Locating Oil Fields in Southwest Texas."

The production engineering session Tuesday morning has not yet been completed. F. B. Plummer, geologist of the University of Texas, will speak on "Petroleum Engineering" Monday morning in the mineral industry education division.

Petroleum Geologists Have Part In Geological Society Meet

WASHINGTON, Jan. 21.—Dr. Elias H. Sellards, state geologist of Texas and professor of geology at the University of Texas, was honored by The Geological Society of America, meeting here for its fiftieth annual convention Dec. 28-30, by being elected a councilor. His term of office is three years.

Frederic H. Lahee, Sun Oil Co., Dallas, was selected a councilor of the Society of Economic Geologists for the years 1938-1940. Clarence L. Moody, Ohio Oil Co., is one of 22 geologists recognized this year by the G.S.A. with fellowships for their contributions to the science.

Among those on the convention program was F. B. Plummer, University of Texas oil geologist, who presented one paper and collaborated in a second. Both dealt with geological formations of Central Texas. W. P. Woodring, U. S. Geological Survey, gave a paper on the Pliocene and Pleistocene Deformation in the California Coast Ranges. He is working on oil geology in California.

Parker D. Trask, U. S. Geological Survey, who is working on a co-operative project with the American Petroleum Institute dealing with the origin of petroleum, collaborated with others in the preparation of a paper dealing with work on deep sea cores taken from the North Atlantic sea-bottom by C. S. Piggot.

Use U. S. Helium in New Zeppelin

WASHINGTON, Jan. 21.—Sale of helium to trans-Atlantic interests and for medical use will begin shortly, Secretary of the Interior H. L. Ickes announces. Approval of regulations by the President and final action on the report of the board appointed to appraise privately-owned helium properties in Kansas and Colorado remain to be done as provided by law.

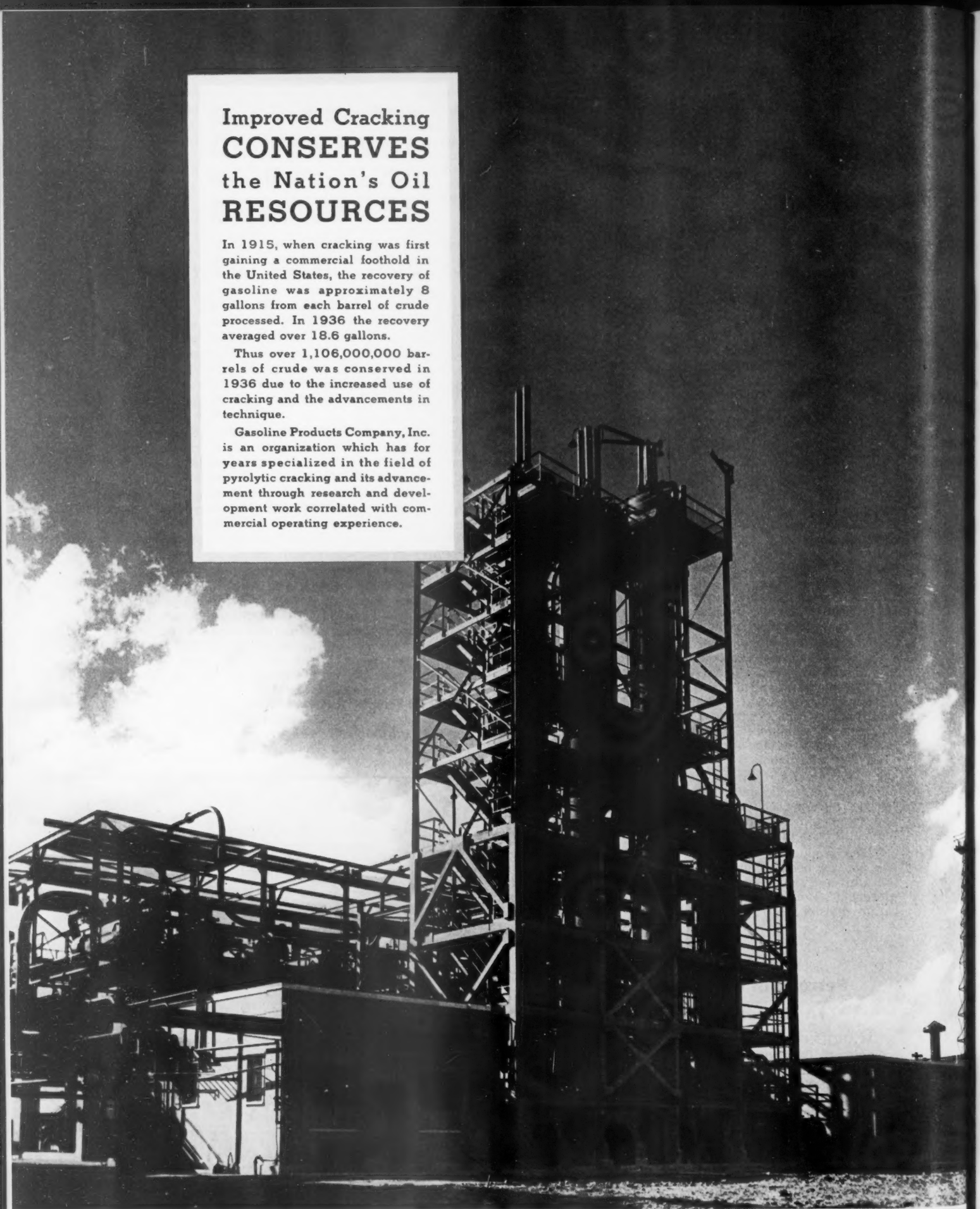
Export of helium for non-military purposes was provided for by Act of Congress last summer following the Hindenburg explosion. Virtually all of this gas (24,000,000 cubic feet per year) is now produced by the Bureau of Mines at Amarillo from natural gas from the Cliffside gas field in the Texas Panhandle.

American agents for German Zeppelin Transport Co. will require 14,000,000 cubic feet for the new LZ-130, now nearing completion in Germany. An additional 3,900,000 cubic feet will be required for make-up in this country in connection with the 15 or more trans-Atlantic flights planned for 1938.

The helium act approved Sept. 1, limited foreign sales to aircraft operating in or between the United States and foreign countries. The United States is the only country known to possess commercial supplies of helium. The indicated reserve of helium in the Cliffside field is 1,800,000,000 cubic feet based on 1.8 per cent yield from the natural gas. Present demands of the U. S. Army and Navy are estimated at 5,000,000 cubic feet annually.

Two helium reserves have been set aside by the President in Utah and helium properties are being appraised prior to purchase by the federal government near Dexter, Kansas and Thatcher, Colo.

John A. C. Warner, secretary and general manager, Society of Automotive Engineers, New York City



Improved Cracking CONSERVES the Nation's Oil RESOURCES

In 1915, when cracking was first gaining a commercial foothold in the United States, the recovery of gasoline was approximately 8 gallons from each barrel of crude processed. In 1936 the recovery averaged over 18.6 gallons.

Thus over 1,106,000,000 barrels of crude was conserved in 1936 due to the increased use of cracking and the advancements in technique.

Gasoline Products Company, Inc. is an organization which has for years specialized in the field of pyrolytic cracking and its advancement through research and development work correlated with commercial operating experience.

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GASOLINE BY BOOSTER LINES

Effect of Carburetion and Manifolding On Anti-Knock Ratings in Multi-cylinder Engines

PART 1

By EARL BARTHOLOMEW*, HAROLD CHALK*, and BENJAMIN BREWSTER*

Abstract

Air-fuel ratio in different cylinders of same engine shown to vary from 11.56 to 16.01. Anti-knock rating of a given fuel in different cars may vary as much as 16 to 18 octane numbers compared with laboratory ratings by the Motor Method.

Distribution of fuel in the manifold varies with the volatility characteristics of the fuel used. A spark plug sampling valve has been devised to determine fuel distribution and air-fuel ratios in each cylinder. Composition of the fuel found in different cylinders varies widely, thus affecting anti-knock ratio. Anti-knock ratings of different parts of fuel also affect knock in different cylinders, because of unequal distribution of fractions of the fuel.

DURING the past six years the development of laboratory testing methods to give knock ratings that correlate with the ratings obtained in cars on the road has been a major problem of the oil refiner and car manufacturer. After the co-operative road testing program at Uniontown, Pennsylvania, in 1932, a laboratory procedure was developed which gave ratings agreeing remarkably well with the road ratings. The ratings obtained on the road in the second Uniontown program in 1934 did not agree quite so well with ratings obtained by the Motor Method. Since that time road ratings have tended to deviate more and more from the consistent pattern which characterized the earlier ratings. This applies to average road ratings and particularly to ratings in individual cars. Fuels which have approximately the same Motor and Research Method ratings may have road ratings as much as eight octane numbers higher or lower than their laboratory ratings. Fuels which have a fairly large difference between their Research and Motor Method ratings may on the road show no appreciation over their Motor Method ratings and others having the same difference between their Research and Motor Method ratings in the laboratory may, under the same conditions of car operation, have road ratings considerably higher than their Research Method ratings.

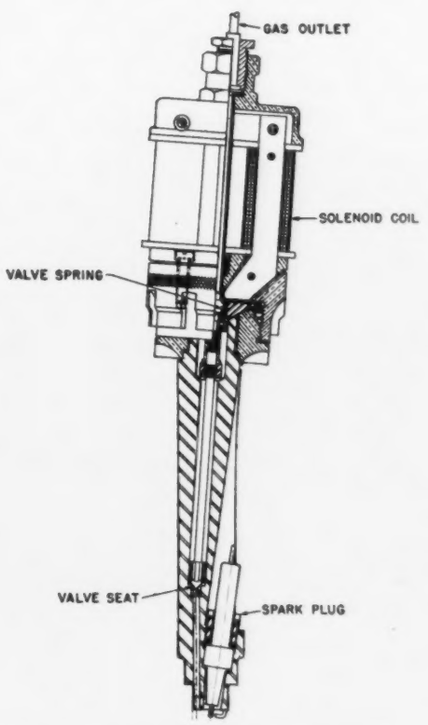


Fig. 1. Valve for sampling mixture in the cylinders of a multicylinder engine

As an example of such performance we may consider the ratings of two specially blended fuels whose road and laboratory ratings are tabulated below:

TABLE I

Road and Laboratory Knock Ratings of Two Specially Blended Fuels

Fuel	Research Method Rating	Motor Method Rating	Average of Winter Road Ratings in Eleven Cars	Winter Road Rating in Car No. 155
S-6	72.9	75.6	71.4	67.6
S-11	71.7	73.8	74.8	80.0

The average road rating of fuel S-6 is substantially *lower* than either its Motor or Research Method rating and the average road rating of fuel S-11 is considerably *higher* than either its Motor or Research Method rating. Although the Research and Motor Method ratings of the two fuels differ by 1.2 and 1.8 octane numbers respectively in one direction, their ratings in Car No. 155 differ by 12.4 octane numbers in the opposite direction.

Car No. 155 is highly satisfactory for knock testing purposes, being relatively free of noises other than that due to knock and having more than average sensitivity to changes in fuel octane number. The influence of certain engine variables such as speed, spark advance and temperature on the relative antiknock value of different types of fuels is generally recognized and may be demonstrated readily in the laboratory on single cylinder engines such as the A.S.T.M.-C.F.R. engine but no variations of the Motor

*Ethyl Gasoline Corp.

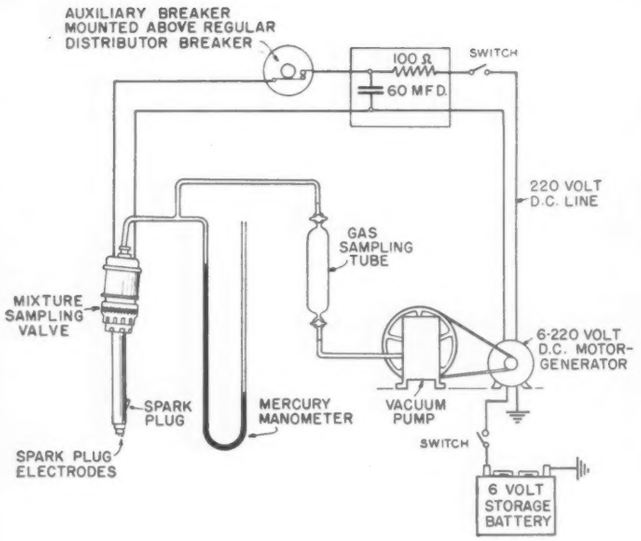


Fig. 2. Mixture sampling valve with associated equipment

and Research Methods which have been tried, involving only changes in speed, temperature and spark advance, have served to bring the laboratory ratings of these fuels into agreement with the road ratings.

Effect of Recent Changes in Engine Design and Fuel Refining

A study of data similar to the above, obtained in numerous laboratories during the past three years, led to the suspicion that some factor or combination of factors, as yet neglected in the standard laboratory knock testing procedure, in some cases may have roughly as great an influence on road ratings as engine speed and temperature. Since the serious disagreement of road ratings and laboratory ratings made by the generally established procedures or simple variations thereof is of relatively recent origin, the changes in engine design which may account for such deviations are of immediate interest. The following seem to warrant attention:

1. Increased cross-sectional area of intake manifolds in conjunction with the general adoption of downdraft carburetors having large tube diameters, resulting in considerably lower intake manifold velocities in the low speed range of the engine, to which knocking is now generally confined.

2. The automatic choke.

3. Decreased mixture heating by the exhaust gases and the use of automatic heat control valves whose operation is controlled largely by the temperature of the air surrounding the bi-metallic element.

4. The elimination of thermostatically controlled radiator shutters.

In addition to these engine design factors there is the possible effect of recent developments in gasoline production such as polymerization, reforming and new cracking methods. It is the purpose of this paper to review some of the recent work in the laboratories of the Ethyl Gasoline Corporation which has had for its purpose:

1. The explanation for at least some of the above-described unusual performance of fuels in cars on the road.

2. The development of improved instrumentation for the analysis of events in the intake manifold and cylinder.

3. The formulation of principles to govern the selection of fuels to meet best any given set of manifold and carburetion conditions.

The paper is designed to present fundamental principles that apply to a complex problem hence, in the interest of simplification, the discussion is confined insofar as possible to typical conditions to be met.

Campbell, Lovell and Boyd* pointed to the probability that mixture ratio and fuel volatility affect the relative antiknock value of fuels and cited tests in cars on the road which appeared to confirm the hypothesis. The work in the laboratories of the Ethyl Gasoline Corporation indicates that fuel volatility, variation of fuel antiknock value with distillation temperature, carburetor air-fuel ratio, design of the intake manifold and associated parts, variation of other conditions which affect fuel distribution within the engine, and the reference fuels used all have an important bearing on the relative knock ratings of fuels.

Fuel of substantially uniform composition is distributed to all the cylinders of a multicylinder engine in approxi-

*See S.A.E. Journal, April, 1937, pp. 144-148; "Relative Knocking Characteristics of Motor Fuels in Service".

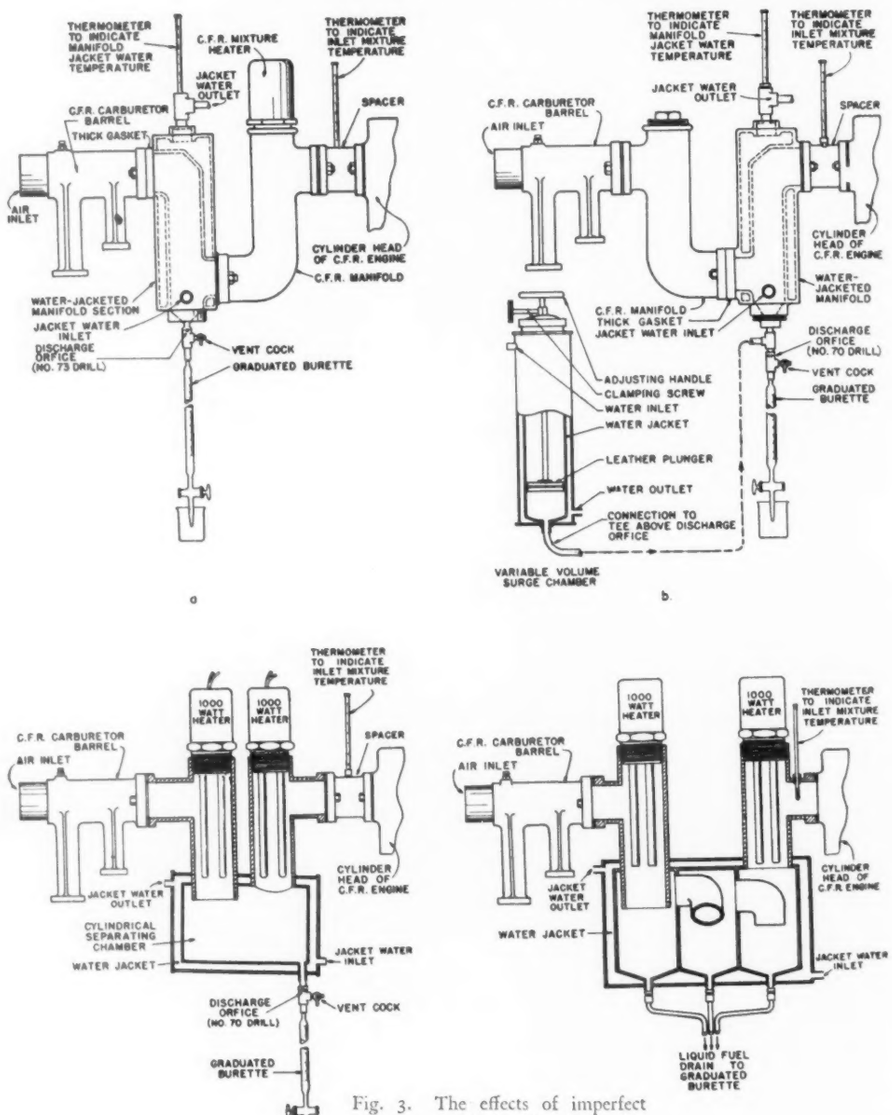


Fig. 3. The effects of imperfect mixture distribution in the multicylinder engine is similated by employing these intake manifolds on the C.F.R. engine

AN EXPERIENCED PERSONNEL

Years of experience with trained workmen in twenty-four different crafts; engineers in all branches of engineering; A.P.I.-A.S.M.E. Code work and specialists in work peculiar to oil refinery equipment. An ideal place in which to have built heavy stills, towers, tanks, special machinery, steel plate work, etc.

SUN SHIPBUILDING & DRYDOCK COMPANY

Chester, Pennsylvania

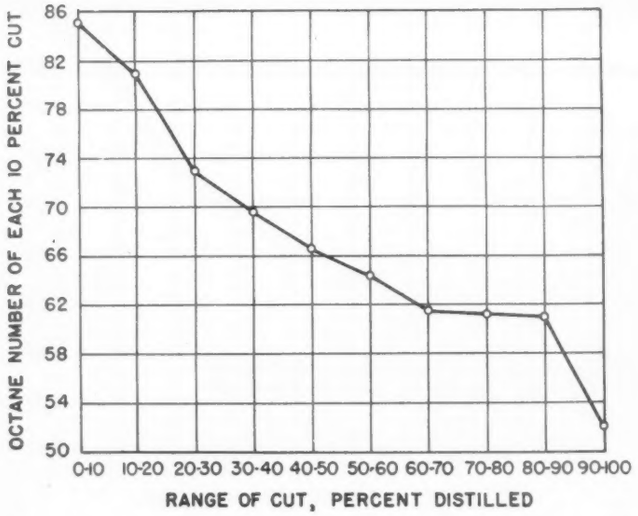


Fig. 4. Antiknock value of ten equal cuts of a typical commercial base gasoline separated by simple distillation. Values were derived on the C.F.R. engine with standard manifold, no mixture heater, maximum knock air-fuel ratio, 140° F. mixture temperature (obtained by heating intake air), 18° spark advance, 212° F. cylinder jacket temperature, and 600 r.p.m. engine speed.

mately equal proportions with the admixed air if the available heat, time of contact of air with fuel, and the agitation of the mixture are sufficient to vaporize the fuel completely and mix it homogeneously with the air or if the manifold velocity is high enough to carry the liquid fuel in the air stream by entrainment. High volumetric efficiency of automobile engines has been obtained only with reasonably low intake manifold velocity. The high brake mean effective pressures at high engine speed in recently built cars require the use of intake manifolds of large cross-sectional area and a minimum of mixture heating. Both of these design features are diametrically opposed to good fuel distribution at low car speeds where knocking has become most prevalent. It is impossible to combine in a single conventional unsupercharged manifold the most satisfactory characteristics for both high and low speed operation.

The determination of the air-fuel ratios of the mixtures entering the individual cylinders of a multicylinder engine on the road has always presented a problem. Samples of exhaust gases withdrawn from the exhaust manifold as close as possible to the exhaust valves are invariably contaminated by products of combustion from other cylinders. The substitution for the conventional manifold of a separate exhaust stack for each cylinder destroys the standard hot-spot arrangement and considerably increases the temperature under the hood. The most desirable approach is the sampling of the mixture within each cylinder. This procedure has been made possible by the combination spark plug and gas sampling valve shown in Figure 1. The small solenoid valve between the cylinder and the gas sampling tube has only a small movement and remains open for a very short period. Its operation is controlled by an auxiliary breaker mechanism mounted above the conventional distributor and driven by the distributor shaft. At the instant the points of the auxiliary breaker close, a condenser in the circuit discharges a relatively heavy current through the solenoid coil and causes the valve to open momentarily. At all other times the valve is held in the closed position by the pressure of a coil spring.

The complete apparatus is shown diagrammatically in Fig. 2. When a sample is to be obtained, the vacuum pump, which is driven by a motor which draws its current from a 6-220 volt motor-generator set, evacuates the gas sampling tube to an absolute pressure of about 5 m.m. mercury. The car is accelerated under the conditions prevailing in the road knock test and the valve allowed to operate only within the five miles per hour speed range of maximum knock intensity. From 6 to 8 repetitions of the acceleration are required to fill the gas sampling tube to atmospheric pressure. The procedure is then repeated for the other cylinders.

TABLE II

Air-Fuel Ratios of the Mixture in the Cylinders of an Automobile Engine at 10 to 15 Miles Per Hour

Atmospheric Temperature, 56° F. Fuel of Winter Volatility

Cylinder No.							
1	2	3	4	5	6	7	8
14.59	16.01	13.29	14.13	12.63	11.56	15.27	12.37

Average air-fuel ratio, all cylinders 13.6
Average for cylinders 1, 2, 7 and 8 ..... 14.4
Average for cylinders 3, 4, 5 and 6 ..... 12.8

Table II shows the air-fuel ratios for the individual cylinders of a certain car during acceleration at 10 to 15 miles per hour at an atmospheric temperature of 56° F., as determined by the apparatus shown in Fig. 2. The mean air-fuel ratio computed from these data is shown, also the computed means for cylinder groups 1, 2, 7 and 8 and 3, 4, 5 and 6, each of which is fed by a single barrel of a dual down-draft carburetor.

Even under the most favorable conditions in the laboratory, ratings made with the bled manifold require more time and a higher degree of skill than those made by the conventional methods. It is believed the reproducibility of

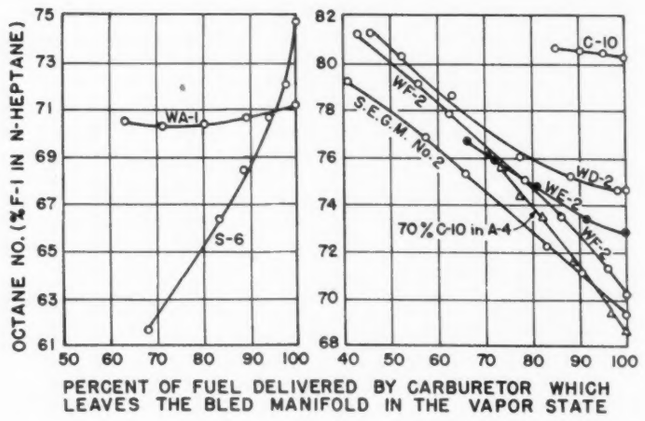


Fig. 5a. Variation of antiknock value with degree of vaporization of the vaporized portion of four of the 1937 C.F.R. winter fuels and four other fuels. Values were derived on the C.F.R. engine with a special manifold (Fig. 3c), maximum knock air-fuel ratio. 220° F. mixture temperature, 18° spark advance, and 600 r.p.m. engine speed

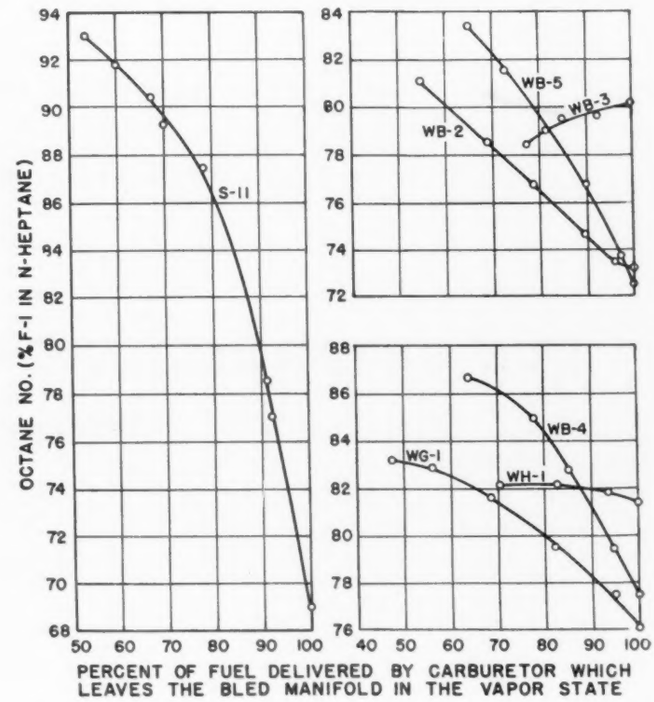


Fig. 5b. Variation of the antiknock value with the degree of vaporization of the vaporized portion of six of the 1937 C.F.R. winter fuels and one other fuel under the same conditions as for Fig. 5a

ratings is about the same. Complete studies of fuels under a wide range of carburetor and manifold conditions, carried out by the procedure just described, should constitute a valuable tool for both the fuel refiner and automotive engineer.

The result of tests made on a single cylinder engine equipped with the bled manifold might be used as a basis for the correction of ratings obtained by the conventional procedure. It would be preferable to obtain final ratings, by a single engine test, which would be corrected for the distribution effects in the car engine and in agreement with the average ratings obtained in cars on the road. Possibly a set of engine conditions, including a modification of the intake manifold, could be found to produce such ratings.

Distribution of Antiknock Value Through the Distillation Range of the Fuel

It has been stated previously that the relative knocking tendency of the lean, normal and rich cylinders (denoted by A, B and C respectively in Table III) depends on the carburetor air-fuel ratio, the degree of vaporization in the carburetor and manifold and the relative concentration of antiknock value in the vaporized light ends and unvaporized heavy ends of the fuel. The distribution of antiknock value through the distillation range may be measured by separating the fuel into a number of cuts by distillation and determining the octane number of each by any of the conventional knock testing methods. Fig. 4 shows such data for a typical commercial lead-free gasoline base stock so treated. The most volatile fractions have the highest antiknock value and the heavier cuts progressively lower octane number.

Such a procedure is time consuming and not required for the determination of the distribution of antiknock value within the practical limits of interest. A more convenient method is to effect the distillation and measure antiknock value simultaneously in the engine itself. Fig. 5 shows the octane numbers of a number of cuts of the 1937 C.F.R. preferred winter road test fuels and of five other fuels. The cuts were made by varying the degree of vaporization in the manifold and in each case included the most volatile fractions of the fuel. All ratings were made at the air-fuel ratio for maximum knock. The curves are stopped at approximately the 50 percent vaporization point for the least volatile fuels inasmuch as this appears to represent roughly the extreme condition to be met on the road.

Fuels may be separated roughly into 3 broad classes in accordance with the distribution of antiknock value along their distillation curves, as follows:

1. Those whose cuts by simple distillation from the 50 to 100 percent points have approximately the same antiknock value as the first 50 percent cut, as for example fuel WA-1 in Fig. 5.

2. Those whose cuts by simple distillation from the 50 to 100 percent points have constantly increasing antiknock value illustrated by specially blended fuel S-6 in Fig. 5.

3. Those whose cuts between the 50 and 100 per cent points have constantly decreasing antiknock value, such as fuel WG-1 of Fig. 5.

Among commercial lead-free fuels, those of the third class are by far the most numerous, however, the degree of concentration of antiknock value in the light ends, although variable, never approaches that of specially blended fuel S-11 referred to herein. Commercial lead-free fuels of the first class are encountered occasionally and fuels of the third class may be changed, by the addition of lead tetraethyl, to have the characteristics of those of the first class. Those in the second class are not available commercially but may be made for research purposes by careful blending of selected components.

(End Part I)

(To be continued in an early issue)

Heads Chemurgic Council

CLEVELAND, Jan. 20.—New president of the Farm Chemurgic Council, succeeding the late Francis P. Garvan, is Wheeler McMillen, editorial director of *The Country Home* and well known agricultural authority.

Willard H. Dow, president of the Dow Chemical Co., has been elected vice president representing industry in the council. This office was held formerly by the late Howard E. Coffin.

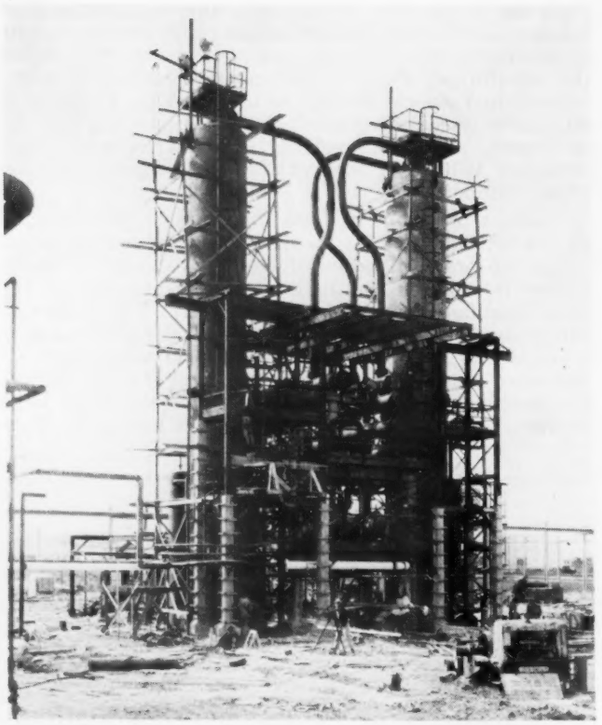
R. C. Alden, director of research for Phillips Petroleum Co., Bartlesville, Okla. Alden is well known in refining and automotive circles from the work of himself and colleagues on light hydrocarbons, natural and motor gasoline technology

D. G. Proudfoot, manager, lubricating department, Phillips Petroleum Co., Bartlesville, Okla.

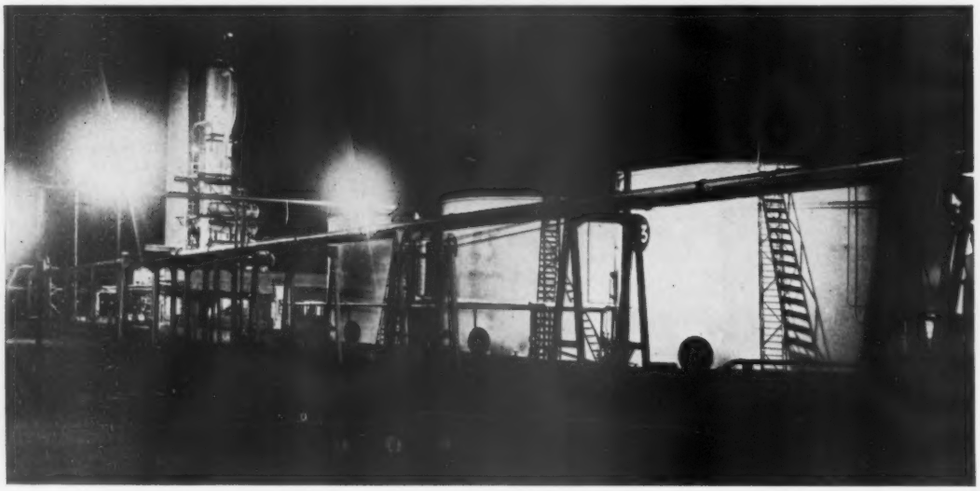
REFINERY EQUIPMENT MANUFACTURERS BUSY

A view of the 151-ton evaporator for Union Oil Co.'s cracking unit can be realized best by comparing it with the man standing in the skirt as shown here

A 9-foot by 71-foot bubble tower, which has been X-rayed and is to be stress-relieved at the Birmingham plant of Chicago Bridge and Iron Co. before being shipped to Bayway, N. J., for installation



This photograph of a double distillation unit under construction may be considered typical of the condition of the industry especially during the last 18 months



A night view of the new topping unit at the ANCAP refinery, near Montevideo, Uraguay. This plant consists of topping and cracking units and treating equipment, and operates on Ecuadorian crude. Photo Courtesy Foster Wheeler Corp.

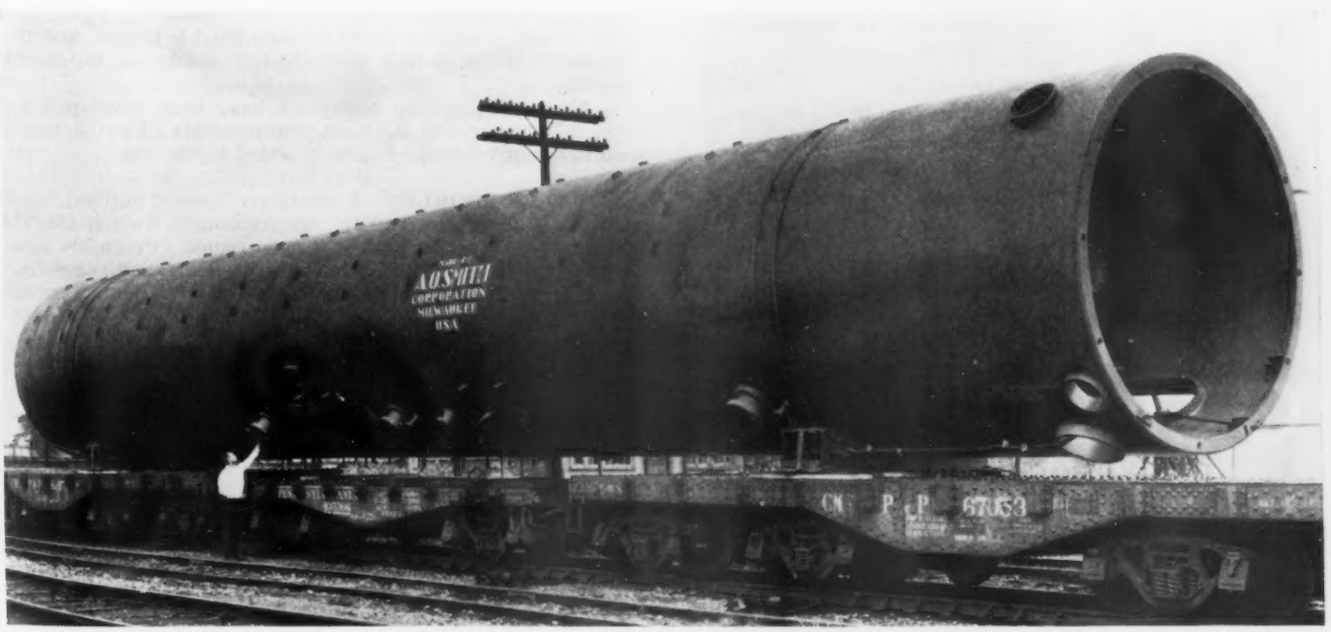
Part of an order of 14 refinery pressure vessels to be stress-relieved; five of these will be installed in the North Baton Rouge, La., refinery of Standard Oil Co. of La., the remainder will go into Venezuela. Photo courtesy Chicago Bridge & Iron Co.

• • •

Swinging into place a 150-ton evaporator tower in Union Oil Co.'s new $2,000,000 cracking plant at Oleum, Calif., required some of the heaviest rigging equipment ever used for similar purpose. The tower is 93 feet long and 13 feet diameter. This unit is the second stage of Union's expansion program, a 15,000 barrel-per-day crude unit, costing $500,000 being completed recently and now running to capacity

• • •

Huge 151-ton, 93-foot evaporator tower for Union Oil Co.'s $2,000,000 cracking plant at Oleum, Calif. Special flatcars were required to ship this, the largest single piece of freight ever shipped to the West



Activities OF EQUIPMENT MANUFACTURERS

STROBOSCOPE—General Radio Co., Cambridge, Mass., is announcing a Stroboscope said to be simple, accurate and inexpensive, for checking the operation of rapidly moving parts while running at normal speed. A high-intensity light source which can be made to flash at 500 to 3000 flashes per minute is employed. It will "stop" motion up to 72,000 r.p.m. The instrument is described in Bulletin 176.

* * *

LACQUER RESISTS RUST INHIBITORS—A new clear lacquer which can be used on equipment lubricated with oils containing rust inhibitors without discoloration is being marketed by Maas & Waldstein Co., Newark, N. J. The lacquer is said to be resistant also to humidity, salt spray, 10% hydrochloric acid, and other chemicals.

* * *

PACKING—An addition to a line of compressed asbestos sheet packing recommended for temperatures above 212° F. where gaskets are in contact with oil or solvent vapors is announced by The B. F. Goodrich Co., Akron, Ohio. Known as Type 72 the packing has graphite mixed throughout.

* * *

THERMOMETER BULLETIN—New thermometer bulletin 198-1, just issued by The Foxboro Co., Foxboro, Mass., is aimed to be as free from technicalities and as interesting in arrangement as it is possible to make the subject. The bulletin covers recording thermometers giving explanations of their operation and specifications of the equipment.

* * *

DUPLEX STEAM PUMP—A new duplex steam pump with eight-cover side-pot type fluid end and improved piston valve steam end has been announced by Fairbanks, Morse & Co., 900 S. Wabash St., Chicago. This new Fig. 6285 pump is said to produce economies in handling oil and other fluids at high pressures and in large quantities. It was designed particularly for industrial and oil field boiler feed service, but is adapted to other applications.

The eight-cover side-pot fluid end permits easier servicing than do other types of construction where larger valve pot covers are employed to cover several valves, it is said. Capacities up to 148 g.p.m. with fluid-end pressures up to 1000 pounds per square inch are available. The pumps are described in Bulletin 6185. The pump is available also for motor, belt or engine drive.

* * *

Appointment of T. M. Robie as manager of the diesel sales division of Fairbanks, Morse & Co., has been announced by A. C. Dodge, vice president in charge of sales.

* * *

PROPORTIONING UNIT—D. W. Haering & Co., 3408 Monroe St., Chicago, announces development of a new entirely automatic proportioning unit designed for continuous introduction of chemical solutions without attention to recharging requirements.

* * *

FLAX PACKING—A new oil-proof flax packing is announced by Crane Packing Co., 1800 Cuyler Ave., Chicago, as Style No. 700-C. It is made from long continuous flax yarn each fiber of which is metallized, graphitized and then impregnated with Crane-Prene, a special oil and gasoline proof binder compound.

The final step is to braid and interlock the chains of flax fibers into sizes commonly used in pipeline pumps and valve stems. Lubrication is said to be permanent. Sizes range from ¼ inch to 2 inches.

* * *

OXY-ACETYLENE WELDING — Exceptional progress in the development of new applications for the oxy-acetylene process occurred in 1937, according to The Linde Air Products Co. in a review of the past year. A notable increase in the amount of industrial piping is said to have been installed by this method.

In pipeline construction an interesting method of bending pipe known as wrinkle bending has been developed. At the point of bend a flame is used to heat one or more narrow bands extending about half way around the pipe. The pipe is bent a small amount as each band is heated, and the heated sections, which are on the inside of the bend, wrinkle up.

New hand cutting blowpipes have been developed for general service and, to meet requirements of extra heavy work, a new blowpipe has been added to the line.

* * *

VALVE BOOKLET—A miniature booklet entitled "Controlling Valves Electrically," by Automatic Switch Co. 154 Grand St., New York, has just been issued. Profusely illustrated, the booklet tells what can be controlled, what can be used to actuate control, and recommends solenoid valves.

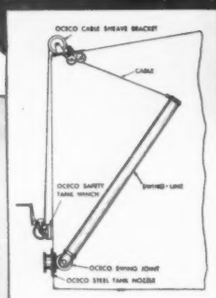
* * *

FLOW METER—To be blown 90 feet in the air was a recent experience of a Foxboro flow meter. The glass was broken and the recorder case cracked but the instrument calibrated perfectly, it is said, and was put back on the job without any repair except to the glass. The Foxboro Co., Foxboro, Mass., tells this experience as an accompaniment for a folder recently issued and describing the instrument.

* * *

ASBESTOS SUIT—A new one-piece asbestos suit has been developed by Johns-Manville, 22 E. 42nd St., New York, for the protection of fire fighters. With shoes and body of garment all in one piece, the suit is put on quickly by a

OCECO *Swing Lines*
MEET THE REQUIREMENTS OF PRACTICAL OPERATION



• Oceco swing line equipment consists of a steel nozzle, a heavy duty swing joint that will not twist or leak, a gas-tight stuffing box and cable sheave mounted on the tank top, and winch—all of Oceco's serviceable design and dependable manufacture. Winches are worm geared and self-locking. Oceco swing lines meet any tank requirement. Write for descriptive literature.

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zipper fastener up the front. Another feature is the heat-proof glass which is suspended from the vizor of the hat and therefore stands clear of the face.

* * *

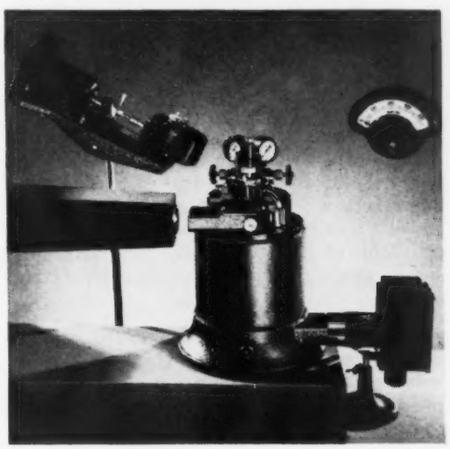
INSTRUMENT BULLETIN—The various improvements recently made in recording voltmeters and ammeters of The Bristol Co., Waterbury, Conn., are outlined in Bulletin No. 496, now available.

One of a new line of round-chart potentiometer pyrometers, which require the making and breaking of only one contact to effect control, is described in Bulletin No. 489. It is a Pyromaster electric-type controller equipped with special Unitact relays. Instead of continuously moving parts and trains of gears to be engaged and released as with ordinary potentiometers, a series of relay-activated switches is used to position the pen arm and effect control.

* * *

ULTRA-CENTRIFUGE—Forces 250,000 times gravitational force are attained in a new centrifuge recently constructed for The Sharples Specialty Co., Philadelphia, from the design of Dr. Beam. Speeding up to 80,000 r.p.m., the new tool is capable of separating two liquids that are in solution, it is said. The rotor is revolved by compressed air in a vacuum. Full speed is attained in 20 to 30 minutes. The vacuum prevents air frictional heat on the rotor.

In addition the new ultra-centrifuge will permit determination of the size of colloid particles by photographic measurement of their rate of sedimentation and permit determination of the size of large molecules by measuring their rate of sedimentation.



The new apparatus runs over five times as fast as Sharples Super-Centrifuge and develops forces nearly 20 times as great. One of the first practical uses was in concentrating filterable viruses. No tool was previously available which would accomplish. The present ability to accomplish this is expected to be important in combating disease.

* * *

VALVES—The Hancock Valve Division of Manning, Maxwell & Moore, Inc., Bridgeport, Conn., announces the addition of Charles Velie and Raymond Heath to its corps of field men. Heath will have headquarters in Dallas where he will serve the oil industry.

* * *

NICKEL CONSUMPTION — World consumption of nickel in all forms during the first ten months of 1937 attained a total of approximately 201,000,000 pounds, an increase of about 24% over the corresponding figure of 1936, according to R. C. Stanley, president of The International Nickel Co.

Developments in the petroleum industry are said to be continuing to create new outlets. A special type monel, nickel cast irons and a variety of forged and cast nickel steels are being used for widely varying purposes. A specific application for 2-3% nickel steel is in solvent dewaxing, where toughness and impact value is required at low temperature. The K-type monel is said to be winning favor for shafting in centrifugal pumps.

* * *

OIL TESTING INSTRUMENTS — A 72-page book entitled "Oil Testing Instruments" and designated as Catalog No. 10-NP is announced by the American Instrument Co. of Silver Spring, Maryland. It presents information on the latest developments in the company's instruments for testing petroleum and its derivatives, compounds, asphalt, etc. The line is comprehensive and includes instruments designed and built in accordance with the requirements of the A.S.T.M., other accepted standards, also special instruments for every oil testing laboratory need.

This book is available without charge upon application on business stationery.

* * *

NEW VALVES—Users of Jenkins standard bronze valves will have the advantages of three new developments which add convenience and better service. A new handwheel design affords improved gripping, a new valve index plate gives replacement part numbers, and a new renewable composition disc is said to offer much longer life in steam service. A descriptive folder is available from Jenkins Bros., 80 White St., New York.

* * *

LINESTARTERS — New Westinghouse totally oil immersed linestarters known as low votage type DNO, explosion-proof and corrosion resisting service, are designed for starting squirrel cage motors in oil refineries and other hazardous locations.

The linestarters are of weather-proof, drip-proof, splash-proof, dust-tight construction with cast iron top casting and heavy sheet steel tank. They are designed for wall or frame mounting.

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Patent Literature OF TODAY

Organic compounds. No. 2 097 155, *issued Oct.* 26, 1937; *filed May* 18, 1935; *H. P. A. Groll and C. J. Ott, assignors to Shell Development Co.; no drawing;* 15 *claims.*

Unsaturated organic compounds are produced by reacting an unsaturated halide possessing an alkyl chain containing an olefinic linkage between two carbon atoms. At least one of these atoms is tertiary and one is linked to a saturated mon-halogenated carbon atom with a metal salt of an acid devoid of oxygen linked by a double bond to a single acid-forming element in the negative radical.

As an example 1.5 mols of isobutenyl chloride and 2 mols of anhydrous NaBr are added to one liter of anhydrous acetone. The mixture is stirred and refluxed at its boiling temperature for 5 hours. On cooling the solid is removed by filtration and the filtrate fractionated. A cut boiling at about 198° F. is collected after isobutenyl chloride and acetone have been removed by distillation.

* * *

Alcohol conversion. No. 2 097 154, *issued Oct.* 26, 1937; *filed July* 17, 1933; *H. P. A. Groll and C. J. Ott, assignors to Shell Development Co.; no drawings;* 22 *claims.*

Unsaturated alcohols and/or ethers containing four or more carbon atoms to the molecule are converted to their saturated isomers containing a carbonyl group. Reactions take place as the alcohols are passed over a solid substance which has an active surface. Non-metallic catalysts such as active alumina, silica, diatomaceous earths, and common brick screenings, as well as metallic catalysts such as collodial or reduced copper are used. Temperature may vary from 250° F. to 660° F.

* * *

Condensation product. No. 2 097 468, *issued Nov.* 2, 1937; *filed Jan.* 19, 1933; *H. Rabe and M. Otto, assignors to I. G. Farbenindustrie Aktiengesellschaft; one drawing;* 4 *claims.*

A product having a molecular weight over 800 is produced by polymerization, in the presence of a volatilizable inorganic halide of the Friedel-Crafts type at below 14° F., of a liquid product containing iso-olefines and resulting from cracking a paraffin wax. Boron fluoride, for example, is stirred into liquid and the mixture is cooled with a bath of acetone and carbon dioxide and a product of molecular weight 5000 is obtained.

The product may be employed to produce a flat temperature-viscosity curve in greases and lubricating oil or added to benzine to prevent losses due to great mobility and to lubricate cylinder walls. They may be used in oil lacquers or varnishes.

* * *

Alkylation. No. 2 098 045, *issued Nov.* 2, 1937; *filed July* 18, 1935; *V. N. Ipatieff and V. Komarewsky, assignors to Universal Oil Products Co.; no drawing;* 6 *claims.*

Aromatic hydrocarbons mixed with paraffinic hydrocarbons are subjected to the action of an acid of phosphorus at an alkylating temperature of 700-900° F. Paraffinic hydrocarbons decompose and the products combine with the aromatic hydrocarbons to alkylate them. The derivatives may be used for increasing antiknock value of gasoline as well as for preparation of pure alkylated products.

About 10% by weight of 90% concentrated orthophosphoric acid is employed. See also No. 2,098,046.

* * *

Diesel fuel. No. 2 096 218, *issued Oct.* 19, 1937; *filed Oct.* 31, 1935; *V. Voorhees, assignor to Standard Oil Co. (Ind.); no drawing;* 3 *claims.*

From one to 10% of isobutylene polymer is added to diesel fuel to raise the viscosity to a pump and valve sealing and lubricating consistency. The viscosity may be about 32-39 seconds Saybolt at 100° F.

* * *

Emulsifying oil. No. 2 099 894, *issued Nov.* 23, 1937; *filed April* 20, 1935; *A. G. Kaufmann, Tide Water Associated Oil Co.; no drawing;* 8 *claims.*

An insecticidal emulsion consists of a dispersion in water of hydrocarbon oil compounded with 0.1 to 10% by volume of oil with Koeme oil. Koeme oil is obtained from the seed of the Telfairia pedata, a plant of the Cucurbitaceae family, and indigenous to the coast of South-East Africa.

* * *

Anhydrides from ketene. No. 2 099 909, *issued Nov.* 23, 1937; *filed Aug.* 13, 1931; *K. T. Steik and A. H. Gleason, assignors to Standard Oil Development Co.; no drawing;* 4 *claims.*

Ketene is reacted with naphthenic acids to form a mixed anhydride of the acids and acetic anhydride. Ketene vapors are passed through liquid acid at ordinary pressures. Temperature is kept down to 20° C. by cooling.

* * *

Anhydrous derivatives. No. 2 100 437, *issued Nov.* 30, 1937; *filed Oct.* 13, 1936; *W. Engs and G. H. van de Griendt, assignors to Shell Development Co.; one drawing;* 11 *claims.*

In producing anhydrous oxygen containing derivatives of an olefine having at least four carbon atoms per molecule, water is removed from the derivative by mixing with it a liquid hydrocarbon containing the olefine and then distilling the mixture to drive over water and the hydrocarbon. The dry olefine derivative is recoverable as a bottom product. The olefine containing hydrocarbon distilled off is used as a source of further olefine derivative.

* * *

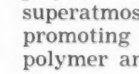
Mercaptans. No. 2 101 096, *issued Dec.* 7, 1937; *filed Feb.* 1, 1935; *R. Reuter and F. L. Gaus, assignors to The Atlantic Refining Co.; no drawing;* 8 *claims.*

Mercaptans having less carbon atoms to the molecule than the olefines from which they are produced, are produced by reacting a branched chain olefine hydrocarbon polymer with hydrogen sulfide at 100-300° C. and under superatmospheric pressure in the presence of a catalyst for promoting depolymerization of the olefine hydrocarbon polymer and reaction thereof with hydrogen sulfide.

* * *

Xanthates. No. 2 101 648, *issued Dec.* 7, 1937; *filed Jan.* 30, 1933; *H. P. A. Groll, assignor to Shell Development Co.; no drawing;* 11 *claims.*

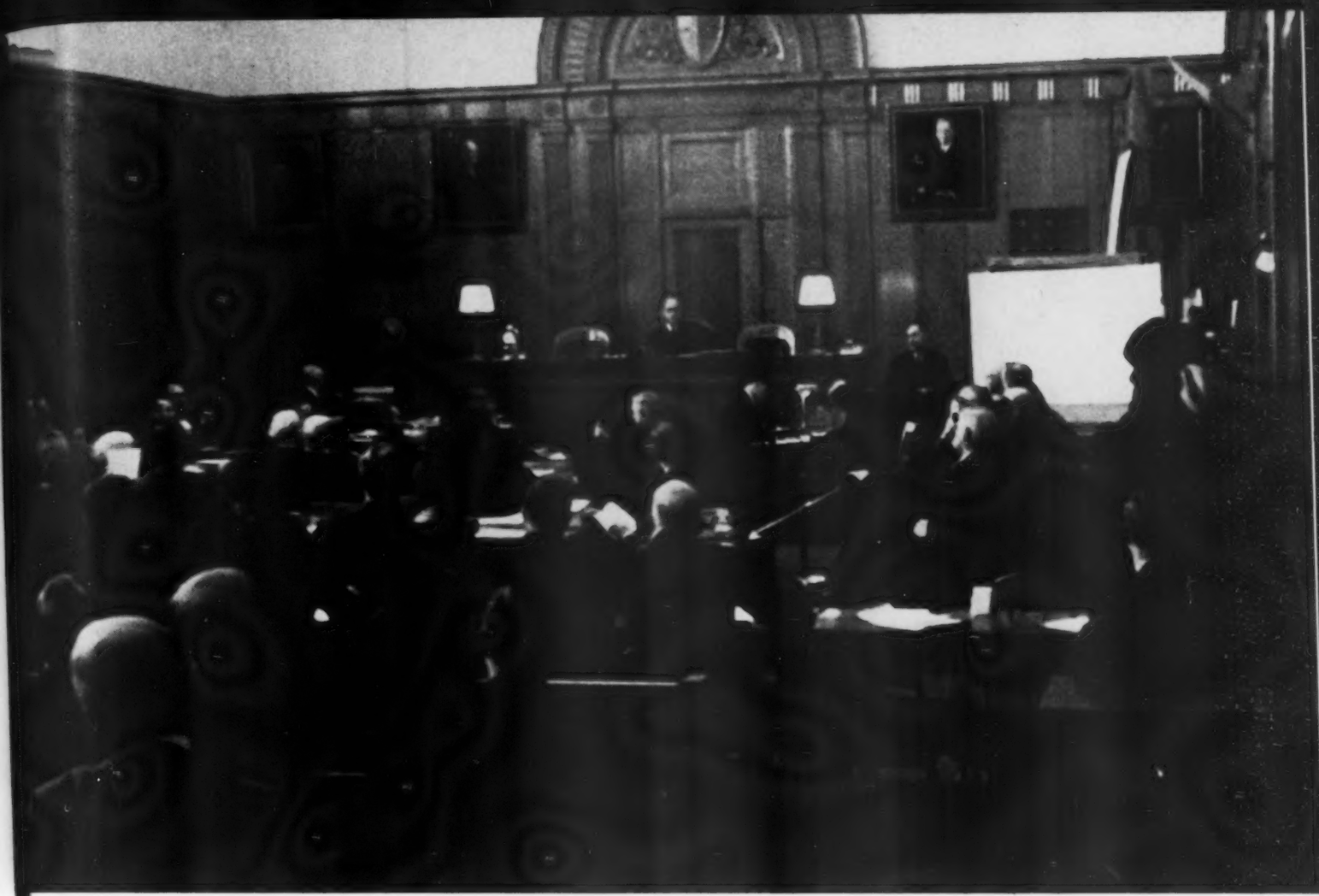
Unsaturated xanthates are made by providing a mixture of mono-olefinic aliphatic monohydric alcohol, containing at least four carbon atoms to the molecule and possessing the general formula:



wherein X represents an isoalkenyl radical and Y represents a substituent of the class consisting of hydrogen and alkyl radicals, X being linked to the carbinol group by an unsaturated tertiary carbon atom, carbon disulfide, caustic alkali and water, and causing a reaction to take place to form an unsaturated xanthate.

Patent No. 2 101 648 provides for a process in which a mixture of an unsaturated secondary alcohol, carbon disulfide and basic metal hydroxide reacts to produce a metal xanthate of the unsaturated secondary alcohol.

Xanthates are used as promotors or collecting agents in froth flotation operations for recovery of minerals from ores, as accelerators in vulcanization of rubber, as insecticides, and as agents in numerous commercial processes.



Here is the only picture taken INSIDE the Madison court-room while the oil trial was in progress. Judge Patrick T. Stone barred photographers during trial sessions. One Friday afternoon before the Christmas recess, when there were not many in the courtroom, the judge had a photographer snap this picture. Flashlights could not be used because they might disturb the jury. After the verdict the judge released these pictures. Seated to the right of Judge Stone's bench is James E. Miller, New York accountant who appeared as a defense witness. The jury box is along the right wall. Government counsel table is immediately in front of the bench. Chief Defense Counsel Donovan is at extreme left

Arguments to Jury Climax 111-Day Madison Oil Trial

N. P. N. News Bureau

MADISON, Wis.—COMPRESSED into 24 hours of argument, opposing counsel in the oil conspiracy case summed up their views of the "tons of evidence" presented during the trial lasting nearly four months.

Counsel for the government used up 14 hours in their two "innings"—in a criminal case the prosecution opens and closes—while the defense took up 10 hours in its time at bat.

John Henry Lewin, special assistant to the attorney general from Washington, was chosen to open the prosecution's argument. For seven hours he harrangued the jury in his vibrant, emotion-filled voice which frequently rose to a shout.

In contrast to Lewin, was T. W. Brazeau, of Wisconsin Rapids, Wis., local attorney representing Cities Service Company, who began the defense argument. Slight of stature, Brazeau made his delivery in a mellow, even-toned voice.

He was followed by H. H. Thomas, white-thatched Madison lawyer, who was a member of defense counsel. He "poured it on" in emphatic tones.

Then came Col. William J. Donovan, chief of defense counsel, who, never departing from the dignified demeanor that marked his 16 weeks in the Madison courtroom, summed up highlights of the defense's case.

After Donovan concluded the defense arguments on the morning of Jan. 20, the government came back for its second inning, with Hammond E. Chaffetz, from Washington, who headed up the government's legal staff, taking up the rest of the day.

Chaffetz, who talks fast but in a clear, resonant voice, drove home his arguments with rapier-like thrusts.

Then, on Jan. 21, just before Federal Judge Patrick T. Stone gave his instructions and turned the case over to the jury, William P. Crawford, of Superior, Wis., concluded the government's arguments.

Crawford, who was hired by the government to give its staff some local color, was about the oldest lawyer in the courtroom. With a genial smile and extravagant compliments to the defense masking his intent, Crawford subtilely nicked the defendants and their counsel.

Defense counsel denied that the defendants were guilty of any wrongdoing, citing praise by government officials for "similar" activities during the NIRA. They contended that the

The federal jury that convicted 30 oil men and 16 oil companies last week in Madison, Wis., of violating the Sherman act.

The back row, left to right, Sam McGraw, Madison, farmer; Neal Larson, Deerfield, retired farmer; Clifford Huber, (alternate) Brooks, fox farm operator; Philip Hanson, Blue River, farmer; Joseph Kalscheur, Klevenville, carpenter; Harry Fullert, Marshall, operator of garage and filling station; Charles Noonan, Union Center, truck operator; E. N. Slattery, Rudolph, farmer.

The front row, left to right, Earl Hibbard (alternate), Knowlton, farmer; James Mullen, Spring Green, real estate dealer; Charles Burnham, Lone Rock, farmer; S. W. Grenzow, Monticello, operator of general store; Hiram Nelson, Stoughton, retired telephone manager, who was foreman of the jury; Frank Brechler, Marathon, retired railroad bridge foreman.

prosecution had failed to prove its charges, pointing to "holes" made in the indictment allegations by defense testimony.

Countering, the government attorneys admitted "mistakes" in the indictment, such as the charges against the trade journals who were dismissed on the government's own motion early in the case, but insisted that nevertheless a complete case had been made out against the remaining defendants.

Much of the government's argument was devoted to reviewing the letters, telegrams, reports, and other documents subpoenaed from defendants' files; as Lewin said in his argument—"Thank heaven for the documents in this case."

Lewin Leads Off For Government

Opening his argument Jan. 17, Lewin told the jury that if they found the defendants had the power to fix gasoline prices in the midwestern states and combined with the purpose of doing so, as charged in the indictment, they should bring in a verdict of guilty.

It makes no difference that the government may have tried to raise prices at one time, Lewin argued.

"Oh no! If that is so, since the government can tax, then Arnott can tax. Why not? If the government can declare war, then these oil barons can declare war in Asia when some of their boats are sunk," the government attorney told the jury.

During the NRA days there was only one way the anti-trust laws could be suspended, and that was through approval by the President or his delegated agent, the secretary of the interior, and not by "Frey, or Fahy, or any of the rest of those pygmies," he said.

Lewin's argument, like the other government attorneys who followed him, emphasized the "bigness" of the defendant corporations and the number of defense lawyers—"Cream of the American bar," he said, "everyone of them working night and day with suggestions as to how the 'red herring' can be drawn across the clear-cut issue of this case."

The jury was asked whether they were going to believe "the tell-tale documents, written contemporaneously" or "the cock-and-bull stories that would tax the credulity of a child, that you men have been inflicted with by witness after witness on that stand."

The government attorney admitted that the Connally Law and other factors affected prices in 1935, but these were "normal, legal effects; they still left competition—a chance to shop around and get gasoline," he said.

But these factors could not have put the price up and kept it there, he added, contending that the price was "manipulated by these defendants with their pools."

Reviewing some of the documents in evidence, Lewin cited letters mentioning a "buying" movement in East Texas, inter-refinery buying and testimony by W. Paul Jacobi, Socony-Vacuum tank car buyer, about "price recommendations."

"I want you to count with me on that graph," Lewin told the jury, pointing to a chart showing the rise in tank car prices in 1935-36, "what I term the stairs by which they climb to satisfy their avarice and their greed.

"These were the stairs that they waltzed the 'dancing partners' up to this high plateau here (pointing to the level-price period in the summer of 1935) where they could all have a good time.

"Here is the ladder of roses, and here is the garden of love—right in front of them," he added, gesturing toward the "plateau."

Lewin urged the jury not to be "misled, because all the details—material and immaterial—of a long indictment haven't been fully and completely established in the very words in which the indictment is written."

He acknowledged that the allegation in the indictment about the major companies purchasing 50 per cent of the independent refiners' output was a "mistake."

The important thing, he insisted, was that the major companies intended to and did buy up all of the surplus gasoline which could influence the price, "whether it was 50 per cent or 25 per cent or 15 per cent." Then he read some more letters about the extent to which the majors bought up the surplus.

That the trade journals "may have been innocent" doesn't militate against the indictment allegation that they were the "chief instrumentality", said Lewin, commenting on dismissal of the charges against *Platt's Oilgram* and the Chicago Journal of Commerce.

"So, don't be misled by any claim that any important link in the government's chain of proof is gone," he added.

Lewin said the reference in Donovan's opening statement to "certain jobbers trafficking in 'hot' oil gasoline" being responsible for the Madison oil indictment was an "ugly slur, intended to inflame the minds of you gentlemen against the people that have been wronged here; not one word of it has been substantiated," he declared.

Turning to other contentions of the defense, Lewin declared that the July 20, 1934, letter of Interior Secretary Ickes to C. E. Arnott, Socony-Vacuum Oil Co., was a "simple, plain letter" and did not authorize Arnott to go beyond stabilization of retail markets.

He said the "most shocking defense" was the "half-baked attempt to put the blame on the government of the United States."

The "most ludicrous" defense, he said a few minutes later, was the defendants' claim that the purpose of their buying activities was to "help" the independent refiner, when, through raising the basic price in their jobber contracts, they were "netting millions for themselves."

As for the defendants' contentions that they "needed" the gasoline purchased, Lewin read some more letters which mentioned companies being "ob-

ligated" to take certain amounts; one such letter stated that "purchases being made because of freight savings, are not credited to us by the Buying Program committee handling inter-refinery purchases."

As Lewin approached the close of his argument, he pointed to the "summary of the government's case—the Sus memorandum," which described a meeting of major companies held Feb. 11, 1935, at Chicago at which a "buying program" was allegedly discussed.

"I ask you, gentlemen," Lewin concluded, "if you want to encourage them to go on in their arrogant, high-handed, cruel, powerful way, and if you want to encourage other industries made of the same type of men—eager, grasping men, to take the law in their own hands and rig the price against the smaller man, then, I think the way to do it is to acquit them and let them go out and laugh up their sleeves that they did it and got away with it."

He urged the jury, if "you have respect for the law," to bring in a verdict of guilty.

Brazeau Opens Defense Argument

Opening the first defense argument Jan. 18, Barzeau charged that government counsel were trying to "poison" the minds of the jury against the defendants. He cited the court's statement early in the trial that "all persons, rich or poor, have the same standing in court."

To understand the whole case, Brazeau told the jury, it is necessary to understand the depressed conditions in all industries at the time and the purposes of the NIRA.

"A concerted action to rehabilitate an industry, to remove evils from that industry, to correct abuses in that industry, to put that industry back on its feet as a paying industry, to see that it can pay wages, that it can shorten hours, that it can improve the industry — isn't a violation of the Sherman Act," Brazeau declared.

"There is no use of the government coming here and claiming, just because we bought gasoline, that we were violating the Sherman Act and that we are criminals. You have to go back and analyze what we did, and see whether it was reasonable, and whether it was just for us to do what we did," he added.

Brazeau then described conditions in the East Texas field, how gasoline made "hot" oil demoralized markets and caused price wars.

"A price war, spreading like wild fire sometimes, not only caused a loss to the retailers but to the jobbers — it was a loss to everybody, and the government desired that it be corrected, and took steps to do so," he added.

Brazeau next told of formation of the East Texas Refiners' Marketing Assn., and Neil Buckley's activities in seeking buyers among the major companies.

The question facing East Texas refiners, Brazeau added, was how to get their markets back.

"They had been 'hot' oilers," he continued. "It was a risk to buy gasoline made from 'hot' oil—it might be confiscated. It was not safe for these major companies to go into East Texas and buy gasoline with that threat before them—and they had been buying in East Texas in times past; they always needed gasoline.

"Now, this marketing association met to decide how they could get these majors back in there to buy—how they could get them to trust them again as legitimate makers of gasoline," he added.

The natural way was to get somebody in whom the majors had confidence to present their case to the majors, and the "most natural person in the world to turn to was Neil Buckley."

He insisted that the government had produced no evidence in support of its allegation that the association was organized "for the purpose of selfishly serving ourselves."

At the outset of the case the government put in a chart and claimed that the line represented the "high, arbitrary and artificial prices" the defendant companies were paying, without "ever proving that we actually did," Brazeau declared.

"They threw the burden on us to show that it wasn't so," he added.

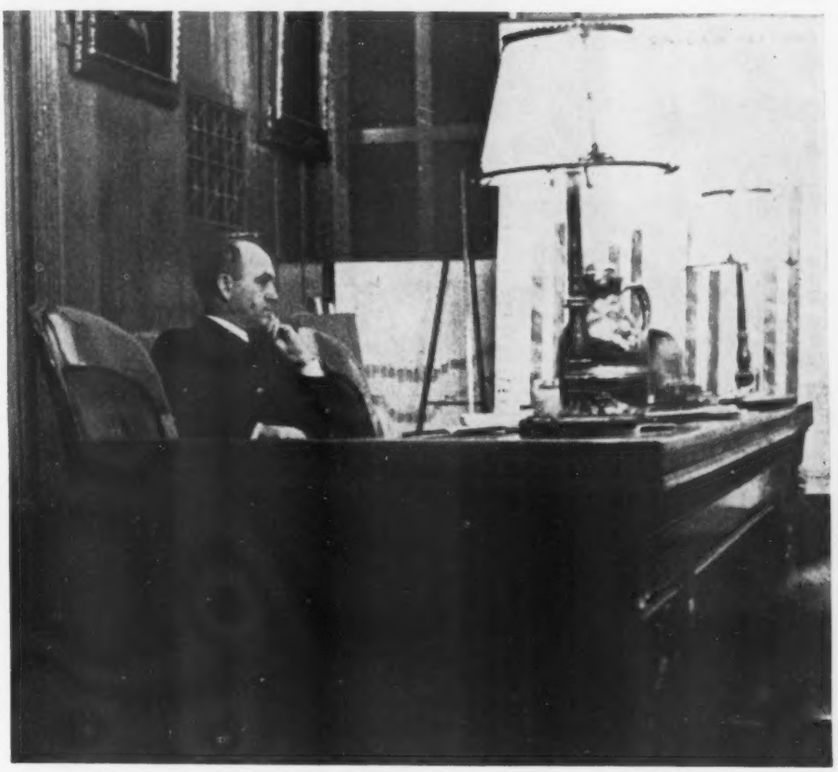
"We didn't stop with the fact that they had failed to prove their case, but went ahead and went into all those purchases; and the figures completely refuted what the indictment charged," he declared.

Purchases by the defendant companies in East Texas were far less than the 50 per cent alleged in the indictment; and instead of the prices being "high, arbitrary and artificial," they bought at the "low" or below the "low" of the market, the defense attorney told the jury, citing figures.

"If you were rigging the market and buying at a 'high and artificial' price, an arbitrary price agreed among you, why you would buy up here," Brazeau said, pointing to the top of the price range on the chart. "You would buy above the low of that market; you couldn't lead the market (pointing to the bulk of the purchases which were at the low) and certainly not by buying below the market."

As further evidence against the charge of a "combination and conspiracy to fix uniform, high and arbitrary prices," he pointed to instances where four different prices were paid on the same day by different companies among the defendants.

Brazeau said the evidence showed



Here is a typical pose of Judge Patrick T. Stone presiding at the Madison oil trial—it is the only "action shot" of the judge on the bench taken during the trial. In the background, are some of the charts which were put in evidence. Just the head of the witness can be seen, over top of ink well

the purchasing companies "needed" the gasoline, that Sinclair and Pure Oil, with refineries running at capacity, were buying from major companies in addition to their purchases from independent refiners. He also called attention to the code refinery control program, which cut down allocations in order to force the majors to buy, citing the testimony of John E. Shatford, El Dorado, Ark., refinery coordinator under the code.

Shatford had testified that by the end of May, 1935, due to increased consumer demand and curtailment of runs under the code refinery control program, the companies were "short" about 3,000,000 barrels or "just about equal to the amount bought by the major companies."

Next, Brazeau reviewed instances in which the federal oil administration had evidenced its desire to stabilize the oil industry and bring refinery prices up to "parity" with crude prices.

"It is undisputed that the government desired to stabilize the price of gasoline," the defense counsel declared.

On the question of "furtiveness", Brazeau pointed to Buckley being in contact with Arnott, adding that Arnott was in "close contact with the Petroleum Administrative Board."

Pointing out that government counsel in their opening statements did not mention the Connally Law, Brazeau declared this law "shut off the flood of 'hot' gasoline into the midwestern area." The number of refineries operating in East Texas dropped from about 80 to 14 or 15, he added.

Other factors affecting gasoline prices in the spring of 1935, when the "golden-stair" price rise took place, according to Brazeau, were improved business conditions, the interstate oil compact, increased foreign demand, limitation of exports, higher costs of manufacturing gasoline, and the refinery control program under the code.

"Now, the government put on the stand witnesses who said they never saw a more uniform price for gasoline, but they didn't say that never in history of the industry were conditions the same as at the time covered by this chart," he pointed out.

Declaring that jobbers "are absolutely necessary to these majors for the distribution of their gasoline," Brazeau said it is "undisputed that the majors have been fair with the jobbers and have assisted their jobbers in every way possible."

But there are "a certain few jobbers, or brokers as you might call them, that didn't want this plan to succeed; that didn't want that price to be stabilized," Brazeau continued.

Brazeau told the jury that Carl Beroth, Chicago, of Acme Petroleum Co., who appeared as a government witness was "one of the jobbers that Col. Donovan referred to."

After citing figures showing that a number of East Texas refiners had sold much more gasoline to brokers than they did to major companies, including some purchases by Beroth, Brazeau declared:

"And this is the Beroth of the National Oil Marketers Assn., the secretary of which lodged a complaint in Washington with the Department of Justice, because he couldn't get gasoline down in this country. Was that the reason they lodged the complaint? No.

"They were living off the necessities of these little refiners, and they were buying gasoline down there at a ruinous price, that these people couldn't make a living from and couldn't pay wages to their employes from.

"And that is the reason that the complaint was filed with the government. That is the reason that Beroth lined up everybody that he could under the banner of this association, and attempted to head off these majors from helping out these little refiners.

"He was a dealer in hot gasoline, contrary to what he said. He could buy, and brokers were buying down in that region, contrary to what he said. And he himself bought thousands of gallons down there, from these people," Brazeau declared.

Concluding his argument, Brazeau told the jury that the government has "failed absolutely and completely to substantiate one single allegation of the indictment with reference to that East Texas situation."

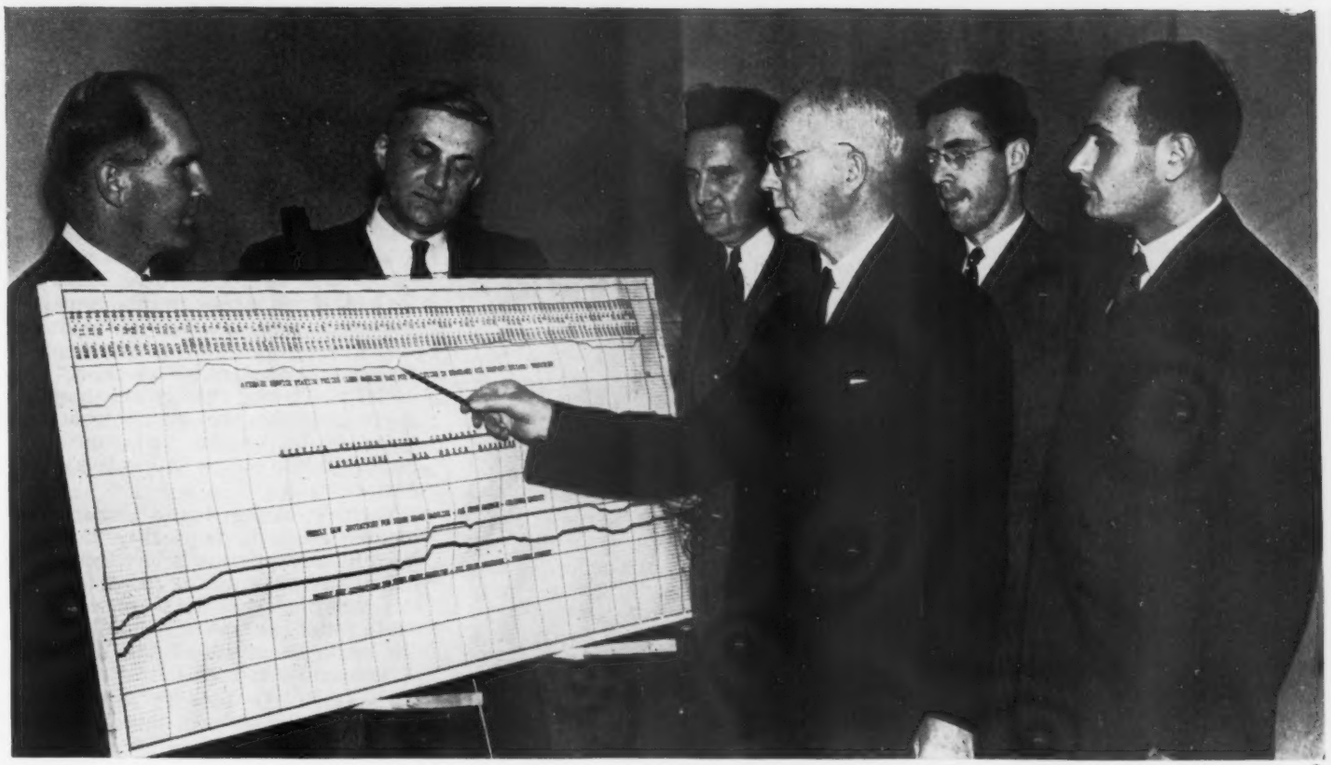
Col. Wm. J. Donovan, chief of defense counsel, standing in front of the building containing his Madison offices, which were usually referred to as "Number One, West Main"

Thomas Takes Up Defense Argument

H. H. Thomas opened the second argument for the defense on Jan. 19, declaring that what the defendants did, was not contrary to the Sherman Act and that the government, through Secretary Ickes, knew what they were doing.

Purpose of the defendants was not to fix wholesale gasoline prices, he contended, but to correct abuses resulting from unfair trade practices, including dumping of gasoline which forced distributors to operate at a loss, he said.

"Because of the fact that the buying that was done by the defendant major companies was not a violation



Government attorneys were in a hurry to get away from Madison after the case was completed. When the jury brought in its verdict, only Hammond E. Chaffetz, chief government attorney, and Grant W. Kelleher, attorney, were on hand. Here is a picture, taken during early days of the trial, showing Wm. P. Crawford, Superior, Wis., lawyer hired by the government, pointing to one of the charts used. Others are left to right, Harold A. Hanson, W. B. Watson Snyder, John Henry Lewin, Kelleher, and Chaffetz

of the Sherman Law, no written permit from the secretary of interior was necessary," Thomas told the jury.

He called attention to the code provision "that the parity between crude and gasoline should be as 1 to 18.5; that is, if you have dollar crude then gasoline should be sold at a price so that you could realize that ratio," he added, declaring that this figured out to 5.4 cents a gallon for gasoline.

"Now, that was written right in the code, and this 'pegging' of the price of crude to which these defendants agreed was part of the whole program of the secretary of the interior," Thomas said.

"WHAT was the Standard of Indiana to gain by that measure," he asked, pointing out that the Indiana company buys 65 per cent of its crude requirements. The Globe companies buy 100 per cent of their crude, and the average for all the defendants companies was about 50 per cent, he said.

The companies "agreed" to raise the price they were paying for crude "in order to enable the government to carry out its program of conservation," Thomas declared.

"Oh, gentlemen of the jury," Thomas continued, "if you are looking for agreements on which to indict these men and these companies, there you have got it. It is confessed. And, like the rise in the price of gasoline that occurred in 1935, it was fostered by the United States government."

Next, Thomas discussed price wars, declaring that they affected everyone "high and low" in the industry. He said the defense did not call any jobbers because those that appeared for the government should "convince any jury that, instead of attempting to put them out of business, the whole effort has been to keep them in business and deal with them fairly."

He then read from testimony, about guaranteed margins, by Walter Wingrove, Sheboygan, Wis., and A. C. Breuch, Madison, both jobbers who appeared as government witnesses.

Figuring the refiner's netback at 4.6 cents, Thomas pointed out that this was less than the taxes and less than the jobber's guaranteed margin, although this 4.6 cents had to pay for finding, drilling and producing, plus refinery operations.

What was done for the independent refiner was just as much a part of the code scheme as "pegging" the price of crude, Thomas continued.

"The whole purpose of the secretary of the interior and of the administration was to save the small refiner," he added. "Incidentally, of course, every refiner benefited by it—but it was high time that somebody benefited by it when they were buying crude at a dollar and selling gasoline at two cents under the price that was fixed in the code."

The defense counsel then turned to meetings that preceded the defendants' buying activities in the Mid-Continent, remarking that when men go about committing a crime, "they don't give it publicity in the newspapers, tell the government about it or invite the government representative to sit in."

The "plan" as finally worked out, Thomas summed up, as follows: "There were to be no pools; no central buying agency—and there were none. Everyone was to buy in line with his needs and requirements. They were to make their own deals with the selling refiner, and that is what they did. There were no allocations or commitments or percentage quotas, as in the previous plan that had been sponsored by the government; and the purchasing company should consider buying at a fair going market price in their individual transactions, rather than take advantage of the distress of the seller."

POINTING out that A. H. Sus, of Chicago, a government rebuttal witness on Jan. 13, testifying about the Feb. 11, 1935 meeting at Chicago had said that the "steering committee" was to keep informed of distress gasoline, bring buyers and sellers together, and keep track of prices and see that the major refiners did not take advantage of the small refiners' distress and "chisel" under the going market, Thomas said that the Sus' testimony "doesn't differ much from what you heard from other witnesses."

The defense attorney criticized the prosecution for bringing in the "Sus

memorandum" at the "eleventh hour" of the trial.

He pointed to testimony that E. J. Bullock (Standard of Indiana) and Edward Karstedt (Continental) at the meeting had declared that they didn't want anything to do with "any buying program where there was any commitments or allotments or agreements as to price"; and that these two were "pessimistic" about any good coming of major company buying.

Neither Pure, Sinclair, Barnsdall, Skelly nor the Indiana Standard was represented at the March 5, 1935, meeting in St. Louis at which the government charges the "conspiracy" was framed, Thomas added.

Next, he cited Jacobi's testimony denying that there were any "price recommendations" by the so-called committee of three.

HE called attention to the chart showing that Jacobi, in buying for Socony-Vacuum, bought at the low and below the low of the market.

"How on earth can you fix prices by buying as it was bought here (pointing at the chart) by Socony-Vacuum? It just can't be done," he declared.

"Talk about conspiracy, fixing prices! Why, you can take a couple of high school boys, and they could do a better job of fixing prices than is depicted on that chart. And, mind you, this chart isn't made from the oral testimony of this man or the other man.

"That is taken from the company records, relating to the purchases of gasoline. It is record testimony that the government has had in its hands since June, 1936," he pointed out.

Thomas told the jury that it was "impossible" for the defendants to have fixed the tank car price or the retail price in the midwestern area at a "high and artificial" level because gasoline would have poured in from surrounding areas. He cited the testimony on this by Sidney Swensrud, Cleveland, of the Standard of Ohio.

He pointed to an aggregate reduction of 1.9 cents in retail prices during the six months prior to March 1, 1935, when the indictment alleges the "conspiracy" started.

Getting closer to home, he called attention to the price-fixing order of the Wisconsin department of markets and testimony that Standard of Indiana had had to raise its third grade prices in order to conform with the minimum price specified in the state order.

Prices in the midwestern territory during the indictment period were lower than outside, he also said.

Next, the defense attorney pointed to the meetings of Arnott with members of the Petroleum Administrative Board at which he said the defendants' buying activities were discussed.

Had the PAB members asked Arnott to stop these activities, he would have stopped, "but they didn't ask him to stop," Thomas declared, citing testimony of Dr. John W. Frey, PAB member called as a defense witness.

"Why didn't the prosecution call in Chairman Fahy of the PAB, if Frey isn't telling the truth? They offer no evidence in contradiction of it. The man (Arnott) goes on and does this work, working with Frey, telling him what he is doing, and then after he has done it, they indict him," Thomas argued to the jury.

The position of the government, according to the defense attorney, "is a good deal like the fellows who volunteered to help in putting out the fire. They worked under the eyes of the fire chief, and under the eyes of his deputies, and after they got the fire put out, the city attorney said: 'Well, boys, now it's just too bad—I have got to arrest you because you worked on this fire without a permit from the fire chief.'"

Referring to the letters read by the government counsel, Thomas asked the jury if it were reasonable that "if these men were engaged in a criminal conspiracy, that they would have imparted all that information to all those underlings working in the various departments of the companies?"

He insisted that these letters emphasized the "fact that these men believed that what they were doing was within the law; that they were doing it at the behest of their government."

"These men are not to be found guilty because of what somebody wrote," he contended, "if somebody wrote a letter that never came to their attention at all until it was produced here in this trial."

He charged the government with being "unfair" in trying to "leave the impression with the jury that the Globe companies were buying gasoline at one price and selling it at a lesser price up here." Facts of the matter were, he added, that the difference was what went to the jobber to make up his guaranteed margin.

Going back again to the price advance in 1935, Thomas pointed out that Lewin was a government employe "with a government salary check" and declared, "I can readily see how he might mistake the stairs from the cellar of bankruptcy and depression for the golden stairs' he has been talking about."

Thomas closed his argument by reading a letter, dated July 25, 1935, from Ickes expressing appreciation for Arnott's services during the code days, and declaring "that the work was well worth while, and went a long way in the accomplishment of the purposes of the code and the NIRA."

He asked the jury if Arnott and those associated with him in this code work "were nothing more nor less than criminals who had violated the Sherman Law, would the secretary of the interior be writing this letter to them, to Mr. Arnott, as late as July 25, 1935?"

Donovan Sums Up Case For Defense

Final argument for the defense by Col. Donovan was started Jan. 20. In his last appearance before the jury, prior to their consideration of the case, the chief of defense counsel took a position in front of the jury box. Speaking without notes in a calm but dramatic tone, Donovan from time to time added to a pile of documents, to which he alluded in support of his argument.

The fundamental issue, Donovan declared, is the charge that these defendants, together with the independent refiners, agreed to fix and maintain the spot tank car market.

"A transaction that merely influences or affects the price is not price-fixing," the chief defense attorney, continued. He said that two essentials to price-fixing were an agreement upon a specific price and an agreement to stick to that price.

Donovan pointed out that the charts in evidence showed that only 10 to 17 per cent of the amount of gasoline sold on the spot market was purchased by the defendant companies.

"So, then, any charge of price-fixing in the spot market comes to this: That it is the price fixed at which independent refiners will sell to customers, such as jobbers and brokers, in the tank car market — not the ten or twelve, or 17 per cent that these defendants might buy, but the price fixed between these defendants and the independents, at which the independents will sell to the other customers, to the jobbers and the brokers."

Donovan said there is nothing in the entire record that even suggests that the defendants "dictated" the price at which independent refiners sold to the jobbers and brokers.

He contended that government counsel had recognized this and were no longer saying that "this was a price-fixing arrangement". Instead, they are saying that what the defendants did "affected" the price, he added, citing Lewin's argument that if it "affects the price one iota, it is a violation of the law."

Lewin's argument, according to the defense counsel, was not a correct statement of the law, "because every transaction, and every sale affects price," Donovan added.

Donovan pointed to the composite chart, based on thousands of transactions, which showed prices paid to independent refiners in the Mid-Continent and East Texas by the defendant major companies as compared with prices paid by jobbers and consumers, and with the price quotations of *Platt's Oilgram* and the Chicago Journal of Commerce superimposed.

He said it was "unfortunate" that the government had not seen the chart before the indictment; "if they had,

the case wouldn't have been brought," he contended.

"You see by that chart, gentlemen," Donovan said, "that the prices charged to jobbers and consumers on very, very many days — substantially on all days, differed from the price charged to defendant major oil companies."

This clearly disclosed, he declared, that the prices set by independent refiners in their sales to jobbers were not participated in by the major companies.

Pointing out that most of the defendants' purchase prices were below the market, the defense counsel said the chart was a "complete exposure of the government's case."

The indictment charged that the trade journals, originally named as defendants, had taken the "high and arbitrary" prices paid by the defendant major companies and "falsely" represented them to be prices paid by jobbers.

DECLARING that if the tank car price had gone down, more independent refiners "would have died", Donovan said that it is a "curious thing, but we are on the side of competition, the way this indictment is drawn, and these gentlemen (pointing to the government counsel table) are on the side of monopoly."

If what the prosecution contends for had been done and had continued, then "those little fellows would have gone to the wall," he said.

And as for the jobber — Donovan said "this thing instead of hurting him was of great benefit to him."

The defense counsel pointed to another chart, explaining that it showed that due to the effects of price wars —forcing the actual price as much as 1.3 cents below "normal"—had cut down the jobber's margin.

"See how, then, from the mere psychology of starting this movement in January," Donovan, pointing at the chart, continued, "conditions began to improve; and how, as this Stabilization Committee began to operate, the position of the jobber steadily improved as the price war was eliminated, so that during most of April, practically all of May and in June, he was getting his whole 5.5-cent margin."

The charge against the trade journals is shown to be "absurd" by the composite chart based on independent refiners' sales, Donovan contended.

"If the trade journals had published our prices as the prices of jobbers and consumers," the defense counsel pointed out, "their price quotations would have been lower instead of higher — the chart shows that!

"Now, the truth of it is, gentlemen, that the papers were truly reporting the actual prices of jobbers and consumers, as is seen from that chart," he said, pointing to the chart which compared published prices with refiners' sales prices to jobbers as disclosed by audits of their books.

"To my mind," Donovan added, "that utterly ruins the position taken by the government here."

Chief Defense Counsel Donovan and C. E. Arnott, Socony-Vacuum, in the Madison courthouse corridor just after the jury returned its verdict. Arnott was described as "chief stabilizer under the code" in testimony of Dr. John W. Frey, PAB member, but the prosecution called him "master mind of the conspiracy"

The defense attorney went on to tell the jury "what we really have been dealing with here — the story that we came in and told you about frankly."

"We put on the stand Mr. Arnott, head of the stabilization committee; and Mr. McDowell, head of the tank car committee; and they told you that story," he continued. "And all this time, government counsel have been battering at our story, which doesn't represent any attempt at conspiracy to fix prices, but deals with what?

"It deals with an honest attempt — no matter how they may laugh at it —to go in and remove an obstruction to free and open competition; to remove that which was depressing prices and tearing this country down into a subnormal level."

He declared emphatically that what the defendants did was "the honest, right, proper and decent thing to do; it was no violation of law." Even without the code or NRA, the action had the sanction of law because it was "reasonable and proper," he insisted.

Resuming his argument at the morning session Jan. 20, Donovan said he was going to picture the facts and circumstances that "influenced the minds and actions and conduct of the defendants" and then ask the jurors to put themselves in the place of the defendants and decide what they would have done in a similar situation.

Donovan sketched the "serious condition" of the oil industry in 1933, then read to the jury Ickes' remarks to the Planning and Co-ordination Committee at start of the oil code in which was outlined general recovery plans of President Roosevelt and the "solemn duty" confronting the committee and Ickes.

"Our task," said Donovan quoting the conclusion of Ickes' message, "is to stabilize the oil industry upon a profitable basis. That is the keen desire of the Administration and we will work with you constantly to that end."

THERE were three things in Ickes' remarks which Donovan asked the jury to keep in mind while picturing themselves as members of the P. and C. Committee: "That the secretary approved the increase in the wholesale price of gasoline, and asked you to hold that advance while paving the way for further improvement; that he advised you that he had established, as his agents to represent him, the PAB; and that you had a 'solemn duty' to perform — stabilize the oil industry."

Continuing in the same vein, Donovan referred to Ickes' successful efforts to raise crude prices and the oil administrator's speech at Dallas in November, 1934, in which he mentioned the independent refiners' plight and the effect of East Texas "hot" oil weakening the wholesale gasoline market.

Next, Donovan came to the Ickes-Arnott letter of July 20, 1934, (published in full text on an accompanying page) which he called "the central fact" in the case.

If that letter had not been written, "there would have been no stabilization committee, no tank car committee and we would not be here together

Ickes-Arnott Letter Called 'Central Fact' of Case

MADISON—Here is the full text of the letter Interior Secretary Ickes, in his capacity as ministrator of the petroleum industry, sent July 20, 1934, to C. E. Arnott, Socony-Vacuum Oil Co., as chairman of the P. and C. Committee's marketing committee.

Chief Defense Counsel Donovan said that the Ickes-Arnott letter was in a sense "the central fact of this lawsuit," declaring that if the letter had never been written there would have been no stabilization committee.

Repeatedly, Donovan sought to put the now-famous letter in evidence during the conspiracy trial, but each time it was barred when Federal Judge Stone upheld government counsel's objections. Finally, it did get into evidence when Government Counsel Chaffetz offered it "because the jury has already heard so much about it."

Text of the letter follows:

July 20, 1934

My dear Mr. Arnott:

"It has been brought to my attention that the market for gasoline and other petroleum products has recently been disturbed by numerous price wars in many different localities and states. This has resulted in causing petroleum products to be sold below cost in some areas in order to meet unrestrained competition, and has in turn depressed the wholesale market for such products, thereby leading to the building up of surplus and to the economic and physical waste consequent thereon.

"Such conditions have a strong tendency toward, and in many instances have resulted in, the payment of wages below the minimum established by the Code and in the working of employees for a period beyond the maximum hours provided for by it. Furthermore, price wars necessarily injure small independent marketers who are unable to dispose of their products profitably when prices sink to ruinous levels. It would appear, therefore, that we are faced with conditions which would, if uncontrolled, tend to frustrate the purposes of the National Industrial Recovery Act by increasing unemployment, reducing standards of labor, and preventing the rehabilitation of industry, which the Act was intended to achieve.

"Under Article VII, Section 3, of the Code it is the duty of the Planning & Co-ordination Committee to co-operate with the Administration as a planning and fair practice agency for the industry. I am, therefore, requesting you, as Chairman of the Marketing Committee of the Planning and Co-ordination Committee, to take action which we deem necessary to restore markets to their normal conditions in areas where wasteful competition has caused them to become depressed. The number and extent of these situations would make it impractical for the Petroleum Administrative Board acting alone to deal with each specific situation.

"Therefore, I am requesting and authorizing you, as Chairman of the Marketing Committee, to designate committees for each locality when and as price wars develop, with authority to confer and negotiate and to hold due public hearings with a view to ascertaining the elements of conflict that are present, and in a co-operative manner to stabilize the price level to conform to that normally prevailing in contiguous areas where marketing conditions are similar.

"Any activities of your Committee must, of course, be consistent with the requirements of Clause 2 of Sub-section (a) of Section III of the Act, and if in any situation it should appear that this Section is not being complied with, the matter should be referred to the Petroleum Administrative Board.

"I trust I can count on your co-operation."

(Signed) Harold L. Ickes
Administrator of the
Petroleum Industry

in this courtroom today," the defense attorney declared.

Before reading the letter, Donovan asked the jurors to keep in mind the circumstances as testified to from the witness stand.

"At the time that letter was written, the whole oil code and its administration was in danger," Donovan told the jury. "Price wars were raging. It was recognized that something had to be done. The PAB called Mr. Arnott, who was chairman of the marketing committee as well as being a member of the P. and C. Committee.

"They went over all these conditions and all these circumstances with him, and they recognized that not only 'hot' oil but distress gasoline was an important factor in causing these price wars that were rampant through the territory. And they discussed also, that they recognized that in order to deal with that situation — it being so inter related — it was essential, not only to deal with the retail question, but with the wholesale question, which included the tank car market.

"With those things in mind, what would you have done?" he asked, as he began reading the Ickes-Arnott letter.

After reading the letter, Donovan told about formation of the tank car stabilization committee early in January, 1935, emphasizing the contacts that Arnott had with members of the PAB during this period, including meetings with the board during the period when the indictment alleged that the conspiracy was being hatched.

He cited instances when he said Arnott told the PAB about the defendants' buying activities and referred to letters and other expressions by Ickes about the need for stabilizing the oil industry. He contended that the committee's activities were given publicity in the trade papers.

Coming to Ickes' letter of April 2, 1935, Donovan insisted that it dealt specifically — not with buying programs — but with a moratorium on dealer accounts in Chicago.

In his argument, Lewin had cited the letter's references about the need of approval for any "agreements", contending that this covered "agreements" regarding buying programs.

Donovan topped off these letters and documents, which he piled up in front of the jury box, with references to statements by President Roosevelt, PAB Chairman Fahy and others about business men "carrying on" voluntarily after the NIRA ended, and, with it, the oil code.

Turning to government counsel's attempts to disparage the authority and standing of Frey as a member of the PAB, Donovan told about telephoning the Department of Interior at Washington during a recess in the trial to ask about Frey's status.

Later, the same day Ickes telegraphed defense counsel that he had approved the "job allocation" of Frey (which Lewin had denied), he pointed out.

In the write-up covering Frey's authority, it was stated that the PAB member had authority "as a personal representative of the administrator to negotiate and sit with committees of those engaged in the stabilization of

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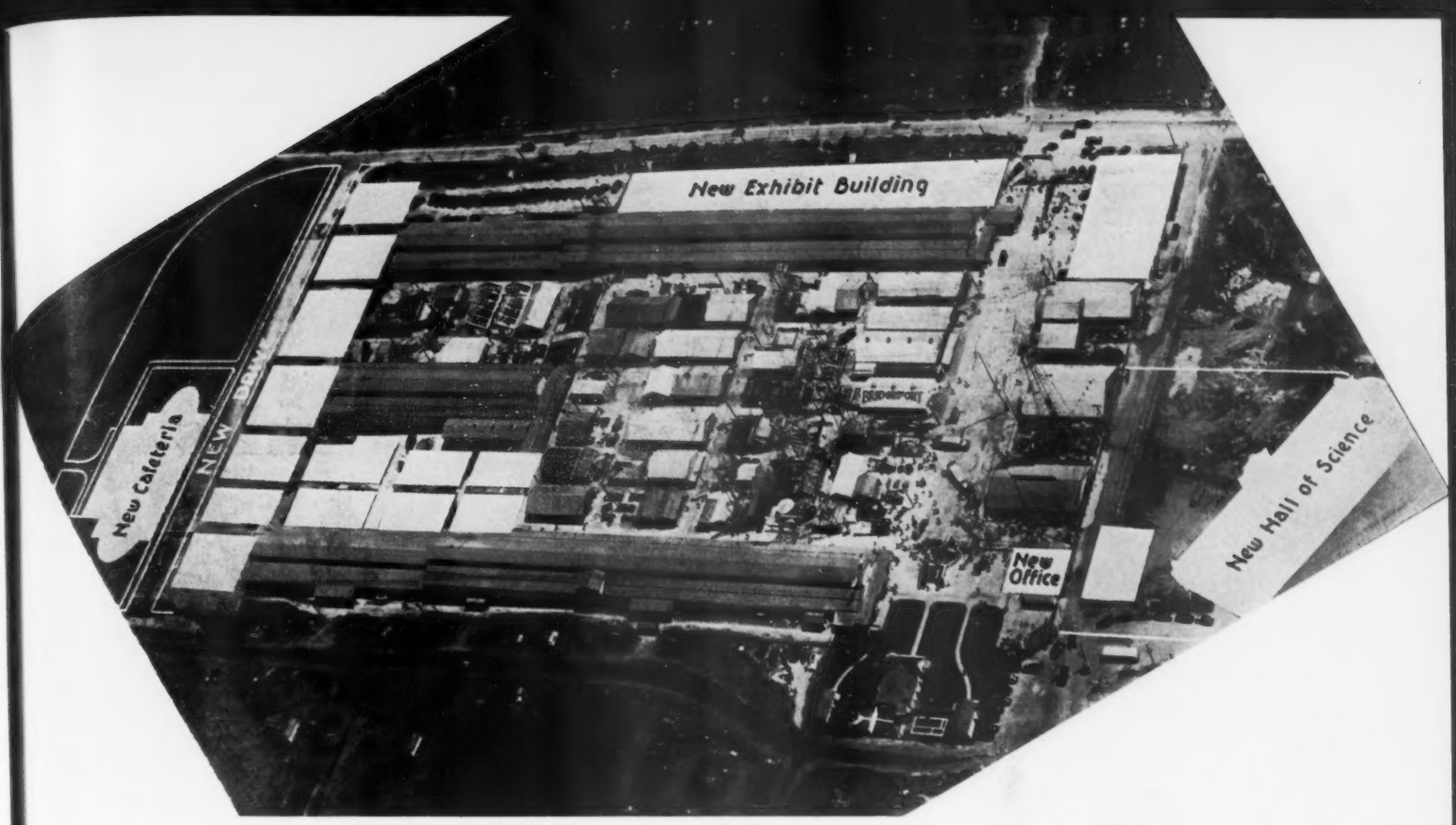


The white blocks on this airplane view of the Tulsa International Petroleum Exposition of 1936 represent the new buildings and additional exhibit space being prepared for the 1938 Exposition, to be held May 14 to 21. In the upper left corner is the site of the new air-conditioned cafe. The white squares across the driveway from the cafe are new exhibit spaces, on some of which will be erected permanent buildings by exhibitors. The "new exhibit building" is adjacent to the present Oklahoma building. At the lower right is the new Hall of Science

Erect New Buildings As Demand Outgrows Space At Tulsa Exposition

WITH NEW BUILDINGS representing an expenditure of $250,000 now under way at the grounds of the International Petroleum Exposition in Tulsa, the tenth renewal of this 15-year-old show for the oil and allied industries May 14 to 21 is destined to break all previous records.

The Exposition's officials have not jumped into this building program in the hope of selling the space, but have ordered construction of each new building only after sufficient space for it already had been sold.

Already nearing completion is the new cafe-cafeteria. Additional space was acquired for this $40,000, air-conditioned structure of modernistic design, which will accommodate 1000 persons at a time. For the tens of thousands of exhibitors and visitors who have had to fight their way in and out of the old cafe which became woefully inadequate several years ago, this new cafe will be a welcome addition to the Exposition's group of permanent buildings.

The Oklahoma building, the first one at the right of the main entrance to the grounds, is being doubled in size, and a new front constructed. Back of the new addition another new building is being erected beside the Refiners and Marketers building. This new structure will be the Kansas building.

The huge building just outside the grounds which formerly housed the exhibits for the Tulsa fair has been acquired and is being rehabilitated and will become the Hall of Science. And joining the present office building a new one is being constructed.

A new hard surfaced drive is being laid between the grounds and the new cafe, as well as additional walks. The entire lighting system is being revamped, with huge flood lights supplanting the "streamers" of lights that have been used for several years.

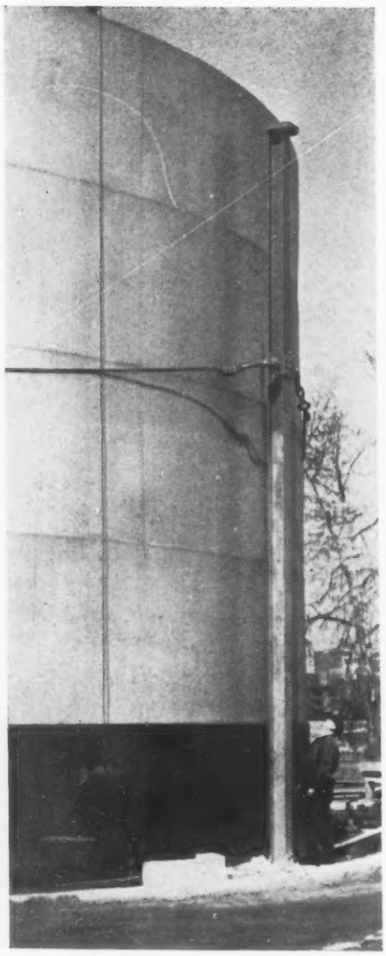
IN addition to the new general construction, eight companies this year are constructing their own exhibit buildings. They are: Oil Well Supply Co., Bovaird Supply Co., Hinderliter Tool Co., Gaso Pump & Burner Co., the W. C. Norris Co., International Harvester Co., Halliburton Oil Well Cementing Co., and the Petroleum Engineer Publishing Co.

When construction of all these buildings is completed there will be 27 permanent buildings on the Exposition site.

Back in the fall of 1923, when there were 27 exhibitors at the first Exposition, which was held in a roped-off street beside the city's convention hall, 14,000 persons visited the show. This year's addition to the Oklahoma building would have more than held the entire show that first year.

For the 1938 show there already has

(*Continued on page* 50)



Tank guides at Shell's plant at East Hartford, Conn., are the first of this type of construction. They were designed by engineering computation for strength but have not yet been put to test by actual flood—*Photo Courtesy the Hartford Times*

Anchoring Tanks In Flood Areas

New Cincinnati Ordinance Is a Co-Operative Effort of the City Council and the Oil Industry; All Tanks Must Meet the Requirements by April 7

THE anchoring of oil storage tanks in flood areas to prevent spillage, overturning, and carriage of tanks down stream in time of flood is required for the first time, so far as is known, by a new ordinance recently passed by the Cincinnati council.

The ordinance went into effect for new construction Jan. 7 and existing plants must meet the requirements by April 7. The ordinance is the result of the city's disastrous experience in the record breaking flood of January, 1937, in which overturned and floating tanks of flammable oils were responsible for two fires and other serious fire hazards.

The oil industry took a hand in framing the new ordinance when some of the city's officials prepared and recommended an ordinance covering oil storage plants which was regarded as far too drastic and impractical. Passage of the ordinance, which is now described as a product of the oil industry, followed nine months of continuous negotiations, conferences, debates and hearings by members of the Cincinnati Oil Club, Hamilton County Petroleum Industry Committee, and others.

During the early stages of the oil industry's fight for reasonable regulations, a special two-day meeting was held in Cincinnati of a newly formed committee of national representation appointed to study the protection of oil storage tanks in flooded regions. This committee, headed by H. E. Newell, The National Board of Fire Underwriters, consisted of representatives from this body, from the American Petroleum Institute, and from the National Fire Protection Assn. The recommendations of the committee, which were published in a report dated March 22, also supported the industry's objectives and formed a framework around which the new ordinance is built.

The new ordinance provides that persons owning or operating tanks in the flood area, defined as that which would be submerged in water at the 85-foot stage of the Ohio river and is five feet above the record stage of last January, must submit to the Commissioner of Buildings scale plans of layouts covering use of buildings, tanks, and dikes.

The new ordinance applies, in general, to existing plants as well as new construction, except as affecting tankage capacity within one dike, the anchoring of existing underground tanks, and the size of vent openings in underground tanks. Inspection fees are $3 per year for tanks of capacities up to 7500 gallons, $25 per year up to 25,000 gallons, and $75 over 25,000 gallons.

The ordinance calls for equipment approved by the National Board of Fire Underwriters in most cases. A number of amendments have been added to the original ordinance. Some apply to equipment and construction in any area in the city of Cincinnati.

One of the first provisions in the new ordinance makes 50 feet the minimum distance from dikes surrounding tanks with capacities from 64,000 to 600,000 gallons to adjoining lot lines. More than one tank is allowed within one dike, however, provided the total capacity is not over 600,000 gallons.

Clay as well as concrete dikes are permissible provided they are of approved construction. Fine sand and gravel is permitted up to 15 per cent each but 70 per cent must be clay. Dike capacity must be 1½ times the total volume of the tanks surrounded and enclosed areas must be capable of drainage at a minimum average rate of four inches per hour.

Another provision concerns emergency vents and gives specifications, for 10 sizes of tanks, of minimum emergency relief capacity required and of diameters of openings required to discharge vapors. These are given in the accompanying Table No. 1. Approved types of flame arresters are required.

Within the area covered by six feet or more of water at an 85-foot flood stage, tanks containing flammable liquids having flash points below 100° F. must be secured against river current pressures of 25 to 50 pounds per

SANITY

A few refiners, who of course would like to participate more fully in the lusty market for heating oils, are steadfastly refusing to pile up burdensome inventories of gasoline in order to do it.

—OIL AND GAS JOURNAL, December 16, 1937

That's true

Profits that many a refiner might make on his furnace oil business are washed out by the straight-run gasoline he has to make at the same time—he can't sell it

If straight-run gasoline is drowning out profitable operation for you, here is the life preserver—it's the Dubbscracking process

You can run a Dubbscracking unit to suit the market all around the calendar

In the winter you run it to make more furnace oil and less gasoline

In summer you crack everything and make the biggest yield of the best gasoline and at lowest cost, royalty and all

Dubbscracking makes the best furnace oil as well as the best gasoline

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

An emergency pumping unit at the East Hartford plant of Shell Union Oil Corp. It will fill tanks with river water in event of failure of the regular water supply—*Photo Courtesy the Hartford Times*

square foot. Tanks of liquefied gases must be anchored firmly enough to prevent floating when empty and must be strong enough to resist water pressure and other possible forces such as that due to floating objects.

Tanks in the flood area which extend above the 85-foot level one foot to 30 per cent of capacity, must be secured by one of two methods. Guides may be provided to permit the tank to float and be guided in its vertical travel with the flood crest, or tank construction must be such as to resist water pressure empty when submerged to the 85-foot level. In both cases provision must be made to resist the force of river current. Tanks with guides are required to be filled with water, petroleum products, or both before flood waters reach the tanks. Pipe connections to such tanks must be disconnected when flood waters reach a point not less than six inches below the connections. Valves, which must be provided on each side of the point of disconnection, must be closed.

First installation of tank guides as outlined in the Cincinnati ordinance is credited to the Shell Union Oil Corp. at its East Hartford, Conn., bulk plant. Guides on seven tanks ranging in size from 5000 to 55,000 barrels consist of four H-beams equally spaced around tanks and tied together by loose ⅞-inch cables attached through turnbuckles and clevises to plates riveted on the H-beams as shown in the accompanying illustration.

Standard 8-inch and 10-inch H-beams 60 and 72 feet long are used, the former for tanks 30 feet high and the latter for tanks 40 feet high. The beams extend 30 feet into the ground and are embedded in 24 to 54 cubic feet of concrete extending four to six feet below the surface of the ground. Four 6 x 6 x ½ inch angles are riveted to the base of each H-beam to form a bearing surface on the top of the concrete base. Capping the H-beams are 12-inch channels 12 inches long attached by means of small angles. The H-beams stand one foot from the tank.

An auxiliary pumping unit at this plant with an independent source of power is mounted ten or twelve feet above the base of the tanks and is capable of supplying river water to tanks at the rate of 36,000 gallons per hour. Completely empty tanks could be filled by the unit in 170 hours or to the previous highest water mark in this locality in 72 to 84 hours. With electric pumps at the terminal working too, the tanks could be filled to the last water mark in 36 to 40 hours. A 72-hp. gasoline engine is employed and turbine pumping unit.

The Cincinnati ordinance does not require tanks with at least 30 per cent of capacity higher than the 85-foot flood stage to have guides but such tanks must have approved anchors to resist river currents. Horizontal tanks completely submerged at the 85-foot level must have approved anchoring to withstand buoyant forces and river current pressures and must have provision for filling them completely with liquid before flood water reaches an elevation five feet below the bottom of the tank.

Underground tanks of less than 7500 gallons capacity subject to the action of water at an 85-foot flood stage but not anchored sufficiently to withstand safely the buoyant forces which may be encountered must be drained of flammable liquids and refilled with water before flood waters reach the bottom of the tanks.

Underground containers of liquefied gases in established flood areas must be anchored to insure stability and safety when empty against floating and water pressure. Underground tanks of over 7500 gallons capacity for flammable liquids having flash points below 100° F. must meet one of two sets of requirements. One requires resistance to water pressure of at least 300 pounds per square foot when under driveways and anchoring to resist buoyant forces of water at an 85-foot stage. The other alternative is provision of facilities for completely filling the tank with liquid before the flood waters reach an elevation of one-fourth the height of flammable liquid in the tank. Weighting may be no more than is sufficient to hold the filled tank against buoyant forces. All openings must then be closed.

Empty tanks above ground may be left open at a bottom opening to fill with rising flood water provided the openings are large enough for water to enter at not less than four inches per hour. Otherwise the filling must start before flood waters reach a height of three feet below the bottom of the tank.

A loophole has been left in the Cincinnati ordinance to allow for unforeseen conditions which might make it impossible to meet prescribed requirements or for the development of improved methods. This allows for the application of other methods which may be approved later.

TABLE NO. 1

Emergency Relief Capacity for Storage Tanks in Flood Area Required by New Cincinnati Ordinance and Diameters of Openings Required To Discharge Vapors from Tanks

Capacity of Tank Gallons	Minimum Emergency Relief Capacity Required Cubic Ft. per Hr.	Approximate diameter of free circular opening (unobstructed by valve discs, etc.) required to discharge petroleum vapors at the given rates for the following allowable internal pressures:			
		3 inches of water	1 lb. per sq in.	5 lbs. per sq. in.	25 lbs. per sq. in.
		(Based upon orifice coefficient of 0.7 and vapor spec. gr. of 2.5)			
1,000	16,000	4″	2½″	1½″	1″
4,000	44,000	6¾″	3¾″	2½″	1¾″
18,000	88,000	9½″	5½″	3¾″	2½″
25,000	105,000	10¼″	6″	4″	2¾″
56,000	160,000	12¾″	7¼″	5″	3¼″
100,000	230,000	15¼″	8¾″	6″	4″
155,000	290,000	17¼″	9¾″	6½″	4½″
222,000	330,000	18¼″	10½″	7″	4¾″
475,000	395,000	20″	11¼″	7¾″	5″
600,000	410,000	20½″	11½″	7¾″	5¼″

BOY, I'M SURE GETTING AROUND THESE DAYS

"This neoprene hose cuts filling time... cuts draining time... means more calls"

"I DON'T spend much time at stations these days. I'm saving lots of filling time because gas just pours through this smooth bore hose . . . and draining time is cut almost to nothing. There's no clumsy metal lining to hold the gas back.

"Best part of it all is that I'm not tired at night even though I'm filling more stations than ever before. This hose is so light and flexible I hardly notice it.

"And this hose sure lasts a long time. My boss tells me it's lined with neoprene . . . a new material made by Du Pont that isn't affected by gasoline. That's why the hose doesn't get soft and flabby. Yes, sir . . . I'll take neoprene-lined hose for mine."

DU PONT
REG. U. S. PAT. OFF.

Ask your Supplier for

NEOPRENE

Hose

Or write us for a list of Manufacturers

E. I. DU PONT DE NEMOURS & CO., INC., RUBBER CHEMICALS DIVISION, WILMINGTON, DELAWARE

Lubrication Service a Key To Dealer Co-Operation

By **JOHN W. THOMPSON**
N. P. N. Staff Writer

In these days when supplying oil companies are trying to find a closer tieup with their dealers, some companies are discovering that building up lubrication service at stations is a thoroughly mutual topic. The article shows the means some companies are taking to impress their dealers with the profit possibilities in lubrication service.

FEVERISHLY pacing the downtown streets of Detroit during the recent holiday season, in search of a present for "the little woman," the unsuccessful hunt was bringing the writer to a state of nervous exhaustion. After taking what almost amounted to an inventory of the large department stores without results, there was only one source left—those exclusive women's apparel shops, where the timid male fears to tread.

But it so happened that one of these well known women's shops was alert to the feelings of we males in such matters, for in the display window on a neat little card was lettered the message—"Stag Night Tonight."

Here was a store for women devoting one night during the holiday season to men, and doing it in such a way that they might feel free to enter without first having to look up and down both sides of the street to see if anyone was watching.

This little incident is mentioned, not to point out that your correspondent is financially able to do his holiday shopping at exclusive women's shops, but rather to point out that sales ideas are often one of the most valuable features of your merchandise. Stag Night is not new, nor is a women's apparel shop, but stag night at a women's shop—there you have something that is an answer to a bewildered male shopper's prayer, something that virtually opens up a new market.

Similarly, selling at stations can well afford to be continually bolstered by the adoption of novel and workable selling ideas. Many station operators are content to let the station advertise itself. Each station can do this to an extent, in proportion to the convenience and attractiveness of the station. But this is true of all stations.

If you don't think that modern lubrication service and equipment are important in building customer confidence, then you might study these two pictures which the Esso Marketers offer as evidence

THE fact remains that, until you tell him about it in some way, the motorist does not see the many service features at your station. His eye is not trained to see the lift attachment which permits you to do a more thorough lubrication job, nor the special vacuum cleaner equipment you use when servicing all cars, nor the special type of grease gun which does a more complete job. He sees a service station and it is your job to let him know why your station and its service is better than any other.

There's an old adage to the effect that—"If your business isn't worth advertising, advertise it for sale." Those are words for the operator of service stations to ponder on, competition in that field being what it is.

Advertising lubrication service and other services does not necessarily mean advertisements in the local newspapers or Firemen's Ball program. Advertising can take a number of forms.

To get motorists into his station where he can tell and show them about his servicing features, one midwest operator gives the morning newspaper to motorists who drive in to make a purchase during certain hours. Another dealer, in an effort to get his neighborhood acquainted with his station facilities, bought up a number of pairs of inexpensive cot-

a great opportunity is

KNOCKING AT YOUR DOOR!

WITH THE greatest grand total of motor cars, trucks, airplanes, tractors and diesel engines the world has ever seen . . .

With streamline designing and ever more compact, ever more powerful, ever more intricate motors, requiring ever better lubricants . . .

Never has there been a greater demand, nor finer sales opportunity for marketing quality Pennsylvania Oils. Car manufacturers, fleet and bus operators, pilots, farmers and motorists . . . all are "oil conscious" as never before . . . and the wise merchandiser has a golden opportunity to concentrate on and enjoy the fruits of selling Canfield's ***Wm. Penn 200 Horse Power Pennsylvania Motor Oil.***

EXCLUSIVE TERRITORIES

Aggressive merchandisers are invited to investigate Canfield's territory franchise on Wm. Penn Motor Oil.

Welcome this opportunity by getting full information and prices on Wm. Penn . . . the oil that is safe for the fastest and finest motors . . . the oil that more than meets the lubrication requirements of any and all modern motors . . . the oil that will help you expand and build up your quality oil sales.

A TOP QUALITY PENNSYLVANIA OIL is available to merchandisers who sell under their own brand name . . . ask about Canfield's Premium Penn, that 5000 RPM Motor Oil.

MAIL THE COUPON

Canfield

Wm. Penn

THAT 200 HORSE POWER

MOTOR OIL

THE CANFIELD OIL CO., CLEVELAND, O.

Refineries, Cleveland, O., Coraopolis, Pa.
Plants, Cleveland, O., Jersey City, N. J.

☐ Send particulars and price on Wm. Penn Motor Oil

We buy in ☐ Sealed Cans ☐ Drums ☐ Tank Cars

Name_____

Address_____

NPN 1-26-38

303 "Lube" Jobs in One Day

● How many jobs can a one-lift station do in 24 hours?

In a pre-planned effort to set a lubrication job record, the Atlantic Refining station of Alva C. Niebels, Cranston, R. I., was chosen for a test. Other dealers in the community contributed customers, and on Oct. 19 last year, 61 experienced lubrication experts, operating in four shifts of six hours each, lubricated 303 cars in a 24-hour period.

Cars were lined up to go on the lift and, long before they reached the lubritorium, men were at work on them, lubricating engine parts and greasing door latches and hinges. Even while each car was rising on the lift, work was begun on the underside. The average time on the lift was 4.7 minutes and each car received a thorough job.

P. S. Niebels' gallonage has doubled since the demonstration.

ton work gloves. He distributed one glove to his neighborhood list, with a little message attached which stated that the companion glove could be obtained by calling at the station.

All of that is advertising, for its purpose, just as in the case of the newspaper advertisement, is to pull customers into the station.

Many station operators make the mistake of letting the advertising campaign of their supplying oil company carry the entire burden of attracting customers. The alert dealer and jobber is aware that much of this type of advertising is designed to create brand preference and cannot possibly build into its sales story the fact that the Elite Super Service, at the corner of Main and Elm, is equipped with a radio so that the customer does not have to miss his favorite radio program even though he is waiting to have his car lubricated.

NOR can the supplying company advertising point out that Mulch's Service, opposite the Seneca Hotel, runs a parking lot and can lubricate a car while the owner shops and then deliver the car to the store for her.

Oil companies in recent months have been increasingly active in making an effort to contact their dealers and pointing out to them the many ways in which they can merchandise their service and products. The business of selling lubrication seems to have suddenly come into its own as a subject of "more profit" education, and well it may, too, for lubrication service is not only a profitable service in itself but it is a means of selling a number of automotive accessories, especially for the alert operator who inspects a car as he lubricates it.

As an example, the Atlantic Refining Co., Philadelphia, now has 68 instructors in the field, one of their major duties being to contact dealers and educate them in the profit possibilities of lubrication service.

In addition, this company is co-operating with dealers in the promotion in their ranks of a "100,000 Mile Club," by offering a silver plaque to each dealer who qualifies for membership. Any Atlantic dealer who lubricates, by the company's approved method, over 25 cars in one day on one lift or pit, and who takes in a total amount for that day of $100, excluding gasoline, tires and batteries, is automatically elected to the club. The dealer is also provided with leaflets with which he may announce his membership to his neighborhood.

Atlantic also issues a Certificate of Merit which is sent to the qualifying dealer in a frame, with his name imprinted. This certificate is obtained on the recommendation of an Atlantic inspector who, unknown to the dealer, has his car lubricated by the dealer. If the service is given as prescribed by the company, the inspector reports the dealer's name to the company and the certificate is sent to the dealer along with a check for $5 and a supply of announcement leaflets for the dealer's use.

Merchandising road cars and trailers are becoming more evident in oil companies' plans to personalize their dealer contact. The men who man these cars are trained in station selling and merchandising, and they personally work with dealers in an effort to increase business. Here again lubrication is given important attention.

The Albany, N. Y., and Boston divisions of the Socony-Vacuum Oil Co. have joined forces in planning an automobile merchandising trailer which is outfitted like a comfortable office, and provides an inviting place for the company representative and the dealer to discuss the dealer's problems. It provides a place where a conference or discussion can be carried on without interruption and where the dealer can feel free to talk openly.

The trailer, of course, is designed to increase the sale of the company's products through the application of modern merchandising methods, the lubrication plan being the hub around which these efforts revolve. Facilities are provided for the showing of sound motion pictures in the trailer.

Another feature of the trailer is that it is possible on specially prepared layout sheets to set up, by means of actual models, a modern lubrication department, incorporating modern blackboards, centralized lubrication systems, lifts, gun boards, high boys, packaged oil containers, and other lubritorium equipment.

With this arrangement, if a dealer is interested in modernizing, he can obtain a layout sheet of his own building showing where the new equipment would be placed.

These examples only serve to indicate, in a small way, the growing interest of oil companies in their dealers and in their dealers' profit possibilities in lubrication service. There are many others, such as the Shell Petroleum Corp., St. Louis, which is just now embarking on a dealer contact program involving field merchandising agents.

HOWEVER, in spite of this apparent interest on the part of oil companies in dealer lubrication development, there is a surprising lack of oil company newspaper advertising featuring lubrication service. A survey of oil company newspaper advertising over the past four months showed practically no companies even giving secondary mention of the need to visit the "XYZ dealer for a proper lubrication job." Some of the companies do advertise the fact that motorists should visit their stations for complete winter servicing, which of course, includes mention of lubrication as a part of the complete job, along with light bulb testing, battery checking and other service.

Disregarding this one fact, it is encouraging to see this trend toward a closer contact between dealer and supplier. If handled sincerely, such a plan of personalized contact cannot be overdone. The dealers need it; it will boost their business. But it must be done with a view toward workability, or the dealer will be quick to sense it as white collar hokum and junk it without giving it a fair trial.

The efforts over the past two or three years of the General Motors Corp. to tie itself closer to its many dealers may offer a helpful suggestion to oil companies who are wondering if there is any other way they can draw their retail organizations closer to their bosoms.

The General Motors Dealer Council was organized in the latter part of 1934, and is made up of 12 General Motors dealers from each of four geographic sections of the country. Some are from principal cities and others from small towns.

Since the inception of the plan over 25 council meetings have been held in convenient locations. At these meetings, problems involving administration are not dealt with, as such; rather the meetings are concerned with broader phases of corporation policies that apply usually to all divisions, such as new or better methods of operating technique, or adjusting the corporation's scheme of things to rapid change of current events. Any subject of discussion, when it reaches a point of practical application, is referred with a recommendation to the division involved and when an understanding is reached, administration of the plan is effected.

In other words, the dealer is brought definitely into the organization and not only asked, but urged, to bring up subjects for discussion that will be helpful to the common cause. Between meetings, the corporation staff carefully analyzes each possibility.

To indicate the importance which General Motors places on dealer contact and good will, the company recently organized the Dealer Relations Board, consisting of the four ranking officers of the corporation.

The responsibilities of this board will be to hear in a judicial capacity, and determine the merits of, any case of alleged inequitable treatment submitted to it by any dealer holding a General Motors franchise.

These points are mentioned here in the belief that there may be an idea for both large and small oil companies. In reality, the keystone of dealer co-operation is to offer the dealer a workable sales plan and to be certain he has confidence in his supplying company. To give him a voice in the formation of company policies that affect him is one of the more fundamental methods of extending co-operation.

New Jobber In Missouri

BRANSON, MO., Jan. 15.—The Binkley-Awbery Oil Co. has been organized here to take over the Sammy Lane Oil Co. from Mrs. E. G. McQuerter. Claude Binkley, owner of the Binkley Motor Co. and Kenneth Awbery, parts man with the Binkley Motor, are the organizers.

The oldest oil jobbing company in Taney county and one of the largest bulk plants thus goes over to the new company. Continental Oil Co. products will be handled.

New Air-Conditioned Headquarters Of Skelly Oil at Kansas City

New general office building for marketing and Skelgas divisions of Skelly Oil Co. in Kansas City

KANSAS CITY—General offices of the marketing and Skelgas divisions of Skelly Oil Co. here now are housed in a new building at 3525 Broadway. The move was made during the recent holidays.

The new Skelly building is in the heart of a residential district and within easy walking distance of the homes of most of the 375 employes in the two divisions. A private parking lot accommodates the cars of those who drive.

The building is air conditioned in both winter and summer, a complete change of air in the building taking place six times per hour. All offices are equipped with sound proof walls and acoustical ceilings. The building provides 42,000 square feet of floor space.

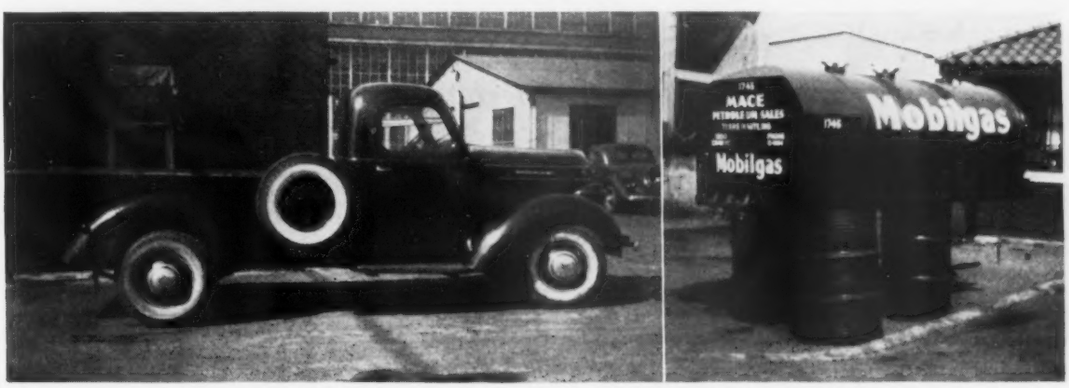
The company and its products are advertised by two display windows and by a tower which is illuminated at night with various colored lights operated by a color blending machine.

Small Delivery Truck Does Two-In-One Job

A two-in-one truck unit has been developed by the Mace Tire and Battery Service, Terre Haute, Ind., and is a combination of their own creation, assembled without the aid of a manufacturer.

The unit can serve either as a small delivery truck, or as a 360-gallon tank truck. When serving as a tank truck, the tank rests on the body of the delivery truck and is secured to the frame by bolts through the bucket box.

The company has erected a platform to assist in changing bodies. The platform is the same height from the ground as the floor of the truck. A 1¼-inch pipe is mounted on the end of this platform, which facilitates rolling the tank on and off the body.



The small delivery truck and the removable truck tank used by the Mace Tire & Battery Service, Terre Haute, Ind.

THE LARGEST FLEET OR A SINGLE UNIT!

HERE is a striking display of modern bulk haulage equipment. Built for THE ATLANTIC REFINING COMPANY of Philadelphia, Pennsylvania by FARRELL, each unit pictured above is a perfect example of FARRELL skilled workmanship and expert designing.

But the FARRELL story behind this fleet is the identical story behind the single truck tank built for the small country bulk station. Both receive the same careful attention of FARRELL engineers . . . both are built for the particular job they are expected to do . . . both are equipped with advanced features made possible only by FARRELL'S more than a quarter century experience building finer bulk haulage equipment.

With an eye to economy, every FARRELL Truck Tank is designed for greater operating efficiency. Cabinets are properly located for in-

FARRELL TRUCK TANKS ARE BUILT FIRST TO LAST

creased convenience . . FLEXIBLE-UNIT construction guarantees lower upkeep cost . . . proper load distribution assures greater driving control, eliminates costly chassis strain. These are but a few of the profitable features you'll find in FARRELL Truck Tanks . . . features you'll find in EVERY Farrell Truck Tank.

Put your bulk haulage needs in "black and white" and mail to FARRELL today.

FARRELL

MANUFACTURING COMPANY

JOLIET, ILLINOIS

The Accepted Standards of Pennsylvania Bright Stock Excellence Since 1900

H-M and L-M Oils Are Made Solely By

THE CONEWANGO REFINING CO.

Warren, Pa.

Automotive

NOTES AND COMMENTS

By JOHN W. THOMPSON
N. P. N. Staff Writer

IN MANY respects the bus and truck lead the way for the future of the passenger car. Rear engined buses, now as widely used as the toothpick and the hot water bottle, foreshadow the type of design conceded for the automobile a few years hence.

Likewise, air conditioning, predicted a certainty for cars of the future at the recent annual SAE meeting in Detroit, has already made its appearance in a number of buses, while it was found on only one 1938 car, and that in a mild form.

Then there's the diesel engine, predicted by many to be soon of a suitable design for passenger cars. For years the diesel has been hanging up economy marks in both bus and truck operation.

Then the hypoid, in spite of its wide use on 1938 passenger cars, is still causing occasional epidemics of nervous indigestion among automotive and oil men. Truck and bus operators, of course, can't understand this, for hypoid axles have been used in some buses and trucks for years. Some of the hypoids in bus service on the west coast have run up more than 200,000 miles and are still going.

Then, you may have heard Henry Ford predict that the future automobile body will be a soy bean product; and who are we to dispute Mr. Ford. But one can't help wonder about such things and where we will all end, can one? —Or can one?

* * *

Automotive researchers, those in the overstuffed offices, are busying themselves now in trying to discover what makes grass green. And what such a discovery may lead to, is difficult to say.

For research, you know, has many blind sides. It is something like taking a boat cruise to nowhere. You don't always know where you're going, but the trip itself is full of discoveries. You may only discover that orange juice and sour cream is good for sea sickness, but again you may discover your future wife, that is, if you don't already have one.

Many times in research the ultimate objective becomes sidetracked by an unintentional discovery. The study of what makes grass green, for example, may lead to the finding of a new recipe for devil's-food cake. Or the deliberate desire of a scientist to discover just what makes a cow moo may even answer the question of what makes grass green. You just never know.

But now that it is possible to cook food without heat, to transform light into sound and sound into light, and to produce cold light, breathes there a man who dare say to the research engineer, "Phooey." Anything can happen. We may someday be reclaiming dishwater.

* * *

From London, via cattle boat, comes word that many buses in that city are being equipped with rubber fenders made of material which combine rigidity and flexibility. Now apparently nothing shall stand in the way of the London bus driver as he carefully "bends" his way through the streets.

* * *

The recent introduction by Hudson of its "low priced" 112 model, again brings to mind the fact the larger car makers are still waiting for the other fellow to bring out a really low priced car. Chrysler, General Motors and Ford, as well as a number of the smaller production manufacturers, are understood to have light weight, low priced cars in various development stages, all holding off until time to bang the iron when it is hot.

As a matter of fact, in spite of the Willys success during the past year, most manufacturers would hesitate to bring out a baby car right now, what with dealers already on the verge of apoplexy from trying to dispose of used cars—as well as new ones.

The low priced cars already on the market are being generously blamed for the present case of business cramps which many dealers now appear to have. Dealers' storage space is well stocked with large heavy cars that are harder to move than a bustle, all turned in by owners who saw the economic advantage to themselves of a low priced car.

So, you see, the plan to bring out a cheaper car involves more than just that. A companion plan must also be launched at the same time to keep the dealer from tearing his shirt.

So, after all, aren't you glad you're in the oil business?

* * *

If you can spare a moment, pull yourself away from that leaking foot valve and take a look at the service station of 1960 as Shell views it. We quote from a recent issue of Shell Progress:

"As you drive off the great Express Hiway and approach the huge circular structure, you press a button in the control room of your Speedocar and speak your order into a micro-

phone. Instantly the car is guided into one of the fifty Servistalls which radiate from the central tower like the spokes of a giant wheel.

"In each Servistall is a turntable, and, as your Speedocar rolls into place, it starts a slow, clockwise movement. But first a smartly uniformed Shell Servisalesman greets you and quickly connects your car with the Dispensometer on which the order you gave has already been recorded. This marvel of mechanical ingenuity then automatically fuels your car, adds the necessary amount of motor oil, and inflates the eight high-speed, blow-out and puncture-proof, rubber tires, while an illuminated dial on your instrument panel records the product delivery and amount of purchase. When delivery has been completed—usually in less than two minutes, a light flashes warning the Servisalesman to disconnect the Dispensometer, and by this time your car has been completely turned around by the turntable so that you are now facing the Plaza from which you entered."

We could tell you more, but your foot valve is still leaking, mister.

* * *

Our would-you-believe-it editor rushes in to tell us that Dodge has figured out that there are, roughly, 35,000 individual parts in a standard four-door sedan automobile today. Think of it—35,000 parts. Seems incredible, stupendous, colossal, gigantic, mammoth—let's see, where were we; oh yes, 35,000 parts. Our libel advisor, Herman Quash, adds, "Seems like lots of parts, doesn't it."

* * *

For some time General Motors, through its public relations division, has been doing a praiseworthy job of presenting the case for industry and what it has done for posterity—and labor.

A recent release is in the form of a chart which shows that, compared to 1925, workers' hourly wages in its plants have increased approximately 25 per cent, while 1938 car prices are about 37 per cent less "per pound."

We must show this "per pound" curve to Simon Slubb, our local butcher. To him, per pound means only one thing—up.

* * *

Mr. Beshers may yet become a favorite son of the oil and automotive industries. For Mr. Beshers has patented an apparatus for testing the wear on pistons and rings to determine the correct grade of motor oil. Such a device, if entirely kosher, might do a lot to reduce the parlor talk that is going on about oil change periods, light oils, and the like.

The apparatus is a gage, operated on the compression stroke of the piston, with each cylinder being tested individually. Wear on the pistons, cylinder walls and rings are indicated on the gage. The gage is screwed into the spark plug opening.

Formal title of the patent is "Apparatus for denoting grades of oil for gas engine cylinders." The number is 2,091,024, issued Aug. 24.

* * *

Lest you think this column is becoming rutted in oil and automotive subjects, our next writing will discuss methods of eliminating the European corn borer, and as an added attraction, some pointers on how to avoid the common type of head cold.

THE MAGIC TOUCH

"Business has sky-rocketed since we put that ex-magician on window service."—The Sunoco Diamond.

Years of Experience . . .

—and the ability of our latest equipped refineries, with efficiency and knowledge, enables us to manufacture Gasoline, Kerosenes, and Fuel Oils with permanent uniform specifications.

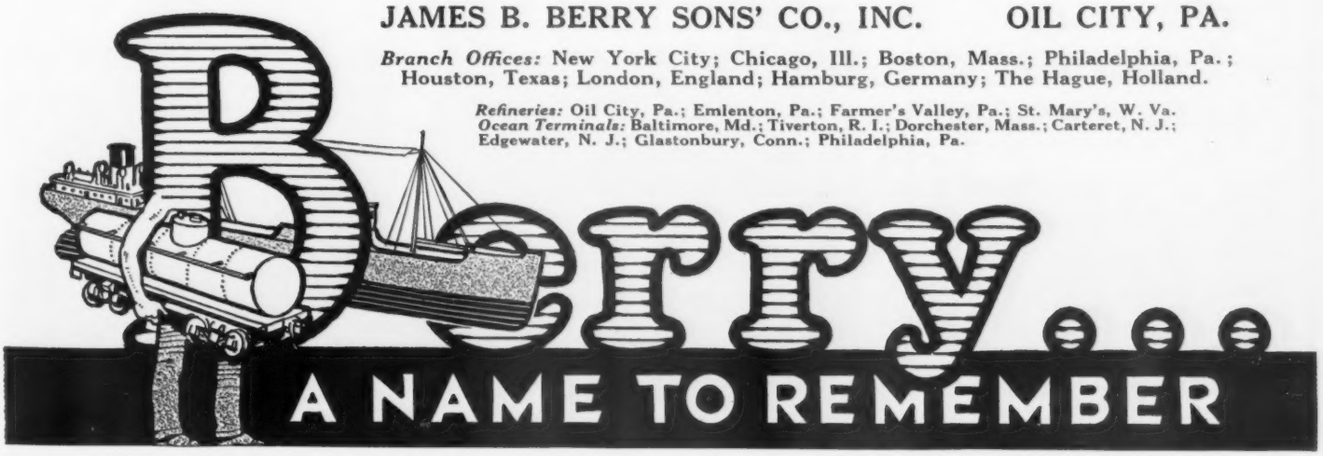
We manufacture all types of burning oils from Bunker Fuels through to Incubator Kerosene. This group includes Range Oil, Furnace Distillate and all grades of Industrial Fuel Oils. We have a specification oil for any purpose.

Your inquiries will be greatly appreciated.

JAMES B. BERRY SONS' CO., INC. OIL CITY, PA.

Branch Offices: **New York City; Chicago, Ill.; Boston, Mass.; Philadelphia, Pa.; Houston, Texas; London, England; Hamburg, Germany; The Hague, Holland.**

Refineries: **Oil City, Pa.; Emlenton, Pa.; Farmer's Valley, Pa.; St. Mary's, W. Va.**
Ocean Terminals: **Baltimore, Md.; Tiverton, R. I.; Dorchester, Mass.; Carteret, N. J.; Edgewater, N. J.; Glastonbury, Conn.; Philadelphia, Pa.**



LEARN ADVERTISING AT *Home*

EVERY man and woman in business should take this course. Why? Because it enables you to think intelligently and accurately on advertising problems. Advertising is an interesting study and prepares you to write more effective letters; to acquire a larger vocabulary; to comprehend the sales and merchandising problems of a business, and to be definitely in a position to recommend business development ideas.

Learning advertising at home is the most satisfactory way of acquiring the facts and fundamentals of this profession. Too often in a classroom students forget what the instructor said last week and last month. Talking about advertising problems won't help nearly as much as THINKING THEM THRU—and this can best be done in the quiet of your own home. The Vincent Edwards Course gives you the data on paper, which you have for lifetime reference.

Every step in advertising is worked out for you—it is easily the most authoritative—the most interesting—the most complete course available.

Executives and Junior Executives: free explanatory booklet will be mailed to you, if you apply on the letterhead of the company where you are employed.

VINCENT EDWARDS
ADVERTISING COURSE
342 Madison Ave. New York City

Enjoy the Convenience Of a Home Copy . . .

THE convenience of a home copy of NATIONAL PETROLEUM NEWS can only be appreciated by trying it. The new low rate of $2 for 52 issues makes this a "luxury" that no oil man can afford to be without. Get your copy today.

— — — CLIP AND MAIL — — —

NATIONAL PETROLEUM NEWS
1213 W. 3rd St., Cleveland, O.

Send a copy to my home right away. Enclosed is check for $2 for 52 issues. (Canada $3.00, Foreign $3.50)

Name .....

Address .....

City .....

New Equipment

AND THE MANUFACTURERS

B. F. Geyer, president of The Wayne Pump Co., Fort Wayne, Ind., announces the appointment of Ora M. Blaker to the newly created position of assistant

Ora M. Blaker

to the president. Blaker has been a member of the sales department for four years. For the last two years he has been assistant sales manager.

* * *

GOODRICH PROMOTION—William Sewall, assistant manager of the B. F. Goodrich Co. petroleum sales department since 1933, has been named department manager succeeding J. P. Woodlock, it is announced by C. B. O'Connor, general tire sales manager. Woodlock resigned after 11 years service to take an executive position with a steel company.

Sewall joined the Goodrich organization in October, 1929. After four years in associated tire lines merchandising, sales promotion and advertising, he was made assistant manager of the petroleum sales department. His headquarters will now be in Akron.

* * *

The Graver Tank & Mfg. Co., Inc., East Chicago, Ind., now entering its 74th year in business, has recently enlarged its Catasauqua, Pa., plant.

* * *

LUBRICATOR DISPLAY—The U. S. Air Compressor Co., Cleveland, used this unique method of featuring their Jack-in-the-box lubricators at the Automotive Service Industries Show in Chicago, Dec. 6-13.

A large cabinet, about three times normal size, is shown in the center and Miss Chicago of 1936-37 is featured in the grease drum. As the front door opens the top cover and the girl in the chair are elevated about five feet so that the model in the grease drum went into the cabinet container which featured the "easy in and easy out" of changing the grease drums.

The large unit at the left of the photo is the new U. S. Air Liner Lubricator, which also features the Jack-in-the-box cover.

New Patents

Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 25c each. State number of patent and name of inventor when ordering.

November 23, 1937

REFINING

Treatment of wax mixtures—Seymour W. Ferris, Aldan, Willard F. Houghton, Swarthmore, and Henry C. Cowles, Jr., Philadelphia, Pa., assignors to Atlantic Refining Co. Filed Aug. 21, 1935. No. 2,099,683.

Decomposing hydrocarbon oils—William H. Bahlke, Robert F. Ruthruff, and Frederick W. Sullivan, Jr., Hammond, Ind., assignors to Standard Oil Co. (Ind.) Filed Apr. 29, 1931. No. 2,099,718.

Treatment of hydrocarbons—Robert F. Ruthruff, assignor to Standard Oil Co. (Ind.) Filed Dec. 13, 1934. No. 2,099,755.

Apparatus for purifying oil—Charles R. Reeves and Cecil R. Gentry, Oklahoma City, Okla. Filed Nov. 30, 1936. No. 2,099,824.

Process of producing gasoline from cracked naphtha—Edwin H. Barlow, Hillside, Amiot P. Hewlett, Cranford, and Paul E. Kuhl, Elizabeth, N. J., assignors to Standard Oil Development Co. Filed Sept. 2, 1933. No. 2,099,835.

Distillation of hydrocarbon oils—Marvin C. Rogers, Chicago, Ill., assignor to Standard Oil Co. (Ind.) Filed Dec. 20, 1933. No. 2,099,907.

Process for treatment of hydrocarbon oils—Maurice H. Arveson, Highland, Ind., assignor to Standard Oil Co. (Ind.) Filed Dec. 29, 1934. No. 2,099,919.

Process of treating hydrocarbon oil—Harold V. Atwell, White Plains, N. Y., assignor to Gasoline Products Co. Filed Sept. 19, 1933. No. 2,099,920.

Recovery and purification of hydrocarbon oil—Malvin R. Mandelbaum, New York, N. Y., assignor to Gray Processes Corp. Filed Nov. 16, 1933. No. 2,100,011.

Process of cracking oil—Cecil E. Beatie, Forest Hills, N. Y., assignor to Power Patents Co., Jersey City, N. J. Filed July 31, 1920. No. 2,100,048.

Cracking of hydrocarbon oil—John W. Throckmorton, New York, N. Y., assignor to Gyro Process Co. Filed Apr. 3, 1935. No. 2,100,062.

Refining lubricating oil with dichloroethyl ether—Clifford C. Buchler and James M. Page, Jr., Casper, Wyo., assignors to Standard Oil Co. (Ind.) Filed Mar. 10, 1932. No. 2,100,099.

Process of treating hydrocarbon oil—Percival C. Keith, Jr., Washington, N. Y., assignor to Gasoline Products Co. Filed June 16, 1933. No. 2,100,283.

MISCELLANEOUS

Alkylation of trihydric phenols—Vladimir Ipatieff, Chicago, Ill., assignor to Universal Oil Products Co. Filed June 30, 1934. No. 2,099,738.

Oil base hydratable drilling fluid—Ferdinand W. Rolshausen and Sam L. Bishkin, Houston, Tex., assignors to Standard Oil Development Co. Filed Apr. 19, 1935. No. 2,099,825.

Motor fuel—Frank A. Howard, Elizabeth, N. J., assignor to Standard Oil Development Co. Filed Apr. 13, 1935. No. 2,099,850.

Emulsifying oil—Arthur G. Kaufmann, Associated, Calif., assignor to Tide Water Associated Oil Co. Filed Apr. 20, 1935. No. 2,099,894.

Preparation of anhydrides by use of ketene—Karl T. Steik, Clifton, and Anthony H. Gleason, Elizabeth, N. J., assignors to Standard Oil Development Co. Filed Apr. 13, 1931. No. 2,099,909.

Manufacture of black wax—Aubrey D. David, Clarendon, Pa., assignor to Petroleum Processes Corp. Filed Nov. 19, 1935. No. 2,100,070.

Motor fuel—Victor Conquest, Chicago, Ill., assignor to Armour & Co., Chicago, Ill. Filed June 29, 1936. No. 2,100,287.

The following to Refining, Inc., Reno, Nev., as assignee of the inventors:

Process of refining (vegetable and animal) oils—Benjamin Clayton, Houston, Tex., Walter B. Kerrick, Los Angeles, and Henry M. Stadt, Glendale, Calif. Filed May 2, 1931. No. 2,100,274.

Process of refining glyceride oils—Clayton, Kerrick, and Stadt, and Benjamin H. Thurman of Bronxville, N. Y. Filed Aug. 14, 1933. No. 2,100,275.

Process of refining glyceride type oils—Clayton. Filed July 9, 1935. No. 2,100,276.

Process of refining glyceride oil—Clayton. Filed Aug. 1, 1935. No. 2,100,277.

Buys Equipment Firm

CLEVELAND, Jan. 20.—Erie Meter Systems, Inc., has purchased the Huffman Mfg. Co., Dayton, Ohio, and moved all plant equipment to Erie, Pa., where manufacture of the former Huffman line of gasoline tank valves and fittings has been resumed.

Erie officials state that the move was made to give the company a more complete line of equipment for oil and gasoline stations. A bulletin covering the new addition to the Erie line, which previously included gasoline pumps and lubritorium equipment, has been published.

WILZIP GASOLINE

65 To 80 Octane

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Build Your Business With High Octane Gasoline

WILOIL CORPORATION

PITTSBURGH, PA.

Plants:

Toledo and Columbus, Ohio
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Detroit, Michigan

Every Battery Tested Pays $1 In Dividends, Surveys Show

A FEW MONTHS ago the American Automobile Association made a report on a survey of emergency services rendered, and discovered, among other things, that there were 3,257,890 battery failures in 1936. The moral of the story is, of course, that comparatively few motorists find time to worry about the condition of their batteries until it is too late.

With the winter season now in full swing, the battery, in addition to being less efficient, is called upon to do a bigger job. Lights burn longer, cold engines are harder to turn over, heaters are operating, to mention only a few of the additional drags on the battery during cold weather periods.

Here is where the station operator can take advantage of his biggest opportunity of the year to sell batteries. As has been so often pointed out, the quickest way to battery sales is through hydrometer tests; and with an increasing number of cars locating their batteries under the hood, this job is now becoming as simple as checking the oil.

The Shell Union Oil Corp., in the current issue of Shell Progress, states that figures covering thousands of hydrometer tests prove that station salesmen sell one battery, two recharges and two rental services for every 10 batteries checked. It is further pointed out that this amounts to $1.09 for every battery watered and tested.

The Humble Oil & Refining Co., Houston, Texas, in a recent issue of the Humble Sales Lubricator, further drives home the lack of service attention which batteries are receiving, and which could be turned into dollars if station operators would recognize the opportunity.

Humble tested the batteries on 75 cars, only a few of which were more than two years old, and found that over 45 per cent of the batteries were in definite need of immediate service. Then too, this test was conducted at Houston, before any real cold spells were encountered.

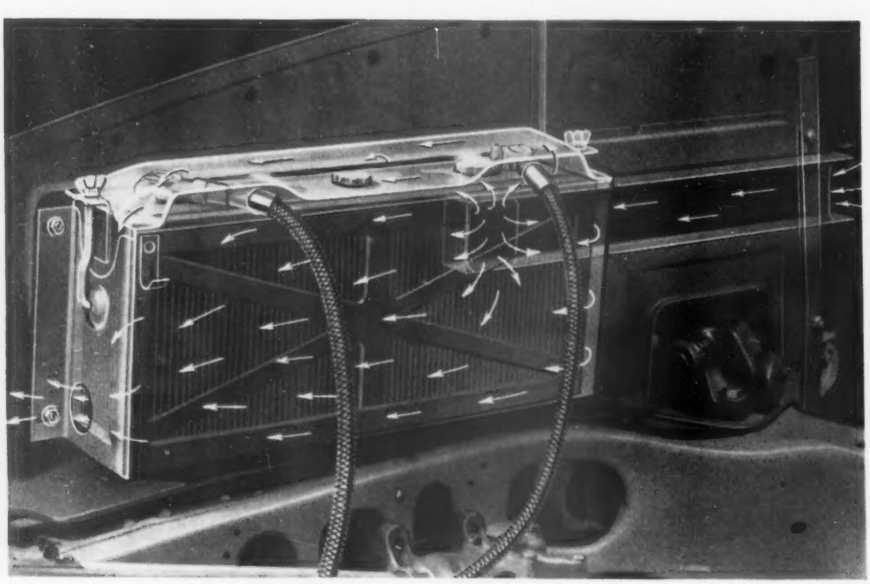
Humble checks very closely with Shell in the matter of returns on battery service. It is pointed out by Humble that battery service actually doesn't pay directly, but that indirectly it pays excellent dividends.

"Obviously," states Humble, "not every customer to whom we give battery service will need a new battery, or a new cable, or even a new recharge, but the average return over a period is what counts."

The company points out that tests have shown that it takes only about four minutes to give complete battery service—taking up the floor boards, removing corrosion, inspecting the cables, and testing each cell. Where batteries are located under the hood, this time is of course considerably reduced.

Humble reports that investigations reveal the average return from the sale of replacements and recharge fees amount to about $1. In other words, a $1 sale for every four minutes of free service is a return which the station operator cannot afford to overlook.

For the remainder of the winter months, service station salesmen will do well to turn to the battery as a dollar producer. The greater number of batteries he can get to with the hydrometer, the greater will be the opportunity for sales and service charges. And another thing, intelligent battery service builds customer good will.



With more batteries now located under the hood, servicing and testing are greatly simplified. The 1938 Oldsmobile battery mounting, shown here, is equipped with an air duct for keeping the battery temperature down. Other 1938 cars with batteries under the hood include American Bantam, Buick, Cadillac (except V-16), Ford, Graham, Hudson, LaSalle, Lincoln-Zephyr, Pontiac, Terraplane and Willys

Aircraft Increasing

WASHINGTON—There were 17,681 pilots and 9152 aircraft holding active Commerce Dept. certificates on Jan. 1, the Bureau of Air Commerce announces. On Jan. 1, 1937, there were 15,952 certificated pilots and 7424 certificated aircraft.

U. S. Has Third of World Highways

WASHINGTON—The United States has approximately 3,065,000 miles of highways, or nearly one-third of the world total of about 9,687,000, according to a world highway survey just completed by the Automotive-Aeronautics trade division, Bureau of Foreign and Domestic Commerce.

In countries surveyed, there were registered about 40,549,000 motor vehicles, of which the United States had 28,520,500, or more than two thirds of the world total on Jan. 1, 1937, it said.

Jury Arguments Climax Oil Trial

(*Continued from page* 32)

wholesale and retail markets throughout large areas of the U. S."

Then, Donovan cited Ickes' annual report for 1935 which stated that "the operations of the Tender Board, of the production provisions of the code and refinery amendment (of the code), and of the stabilization committee and P. and C. Committee, with the cooperation of the PAB, brought the desired parity between the wholesale price of gasoline and crude oil in the spring of 1935."

Donovan asked the jurors, "would you be satisfied in your own minds that the secretary and his agencies cooperated and encouraged the work of the stabilization committee in wholesale markets?"

The defense counsel then discussed "parity" and steps taken by the government in an effort to bring refinery gasoline up to par with crude prices.

Donovan climaxed the defense argument by dramatically calling the roll of the defendants, remembering that they answered such a call three years ago "to sit with the heads of their government."

"Now, in this court of justice because they answered that roll call, I am going to call now their names and ask them to stand so you can see them," the chief defense counsel declared. All but four of the defendants were present; and these, the court explained, were excused because of illness or business reasons.

With the defendants standing in all parts of the hushed courtroom, Donovan turned to the jury and asked:

"Are they men who would barter their reputations for any petty thing such as this? Are they men who would sell their souls for any price?

"Gentlemen, all through this country today you are being looked up as the conscience of this nation. When men are called upon in a solemn duty to respond to the need of their country.

"You give that answer. You say to these men, 'You go without fear and without reproach.' And you say to these men and to this country by your verdict that 'It is unthinkable that men should be punished for doing the very thing that their government asked them to do.

"Thank you, gentlemen," said Donovan, as he concluded the last words of the defense argument.

Opening the government's second "inning" in the arguments, Hammond E. Chaffetz took up the question of "parity."

He said that any or all of the defendant corporations could have bought up distress gasoline if they had done it in a "lawful way, and not for the real purpose, through a combination, of controlling gasoline prices artificially and illegally."

The "Sus memorandum" was not dragged in at the last minute, Chaffetz said, pointing out that it was Exhibit 376 and had been in hands of the court clerk since early in the trial.

PAB Chairman Fahy "warned" Arnott on three occasions about the anti-trust laws, according to the government attorney.

Replying to the defense argument that the letters about major company buying activities were evidence that the defendants believed their activities were legal. Chaffetz pointed out that there were no letters from the files of some companies. He said also that the defense had referred to very few of the 400 documents put in evidence by the government.

Beroth, the first government witness, was defended by Chaffetz, who declared that Defense Counsel Brazeau had failed in his attempt to "prove that Mr. Beroth was a hot oil man." He said it was "outrageous" for a corporation lawyer to "slander an innocent and honest citizen because he comes here as a witness for the government."

Chaffetz contended that the "legitimate" activities of Arnott and the P. and C. Committee came to end with the oil code, after the Schechter decision invalidated the NIRA on May 27, 1935. He said that Ickes thank-you letters to Arnott were for Arnott's "legitimate" activities.

"There isn't one scintilla of evidence in this record which would indicate that the secretary of interior had any real idea at all of what they were doing," the government attorney declared.

Opening the afternoon session Jan. 20, Chaffetz pointed out that under the new NIRA, passed June 8, 1935, Congress took away the power from the President and Secretary Ickes to suspend the anti-trust laws for any kind agreement, except those putting into effect certain labor provisions.

"You realize," he told the jury, "that the code only covered about three months of this 'conspiracy.' They would never have been here in this court today if they had stopped when the code was out."

He charged that the defendants continued on, long after the code went out—down into 1936, and "they didn't stop until the grand jury in this district began to investigate."

Taking up the allegation in the indictment that the trade journals published the "high" prices paid by the defendant major companies, representing them to be prices paid by jobbers. Chaffetz pointed out that on the facts developed at the trial the government "voluntarily" requested that they be dismissed.

"Now, the defense would like you to believe that, because the trade journals are out of the case, that there is no case, because we allege in the indictment that the trade journals are a material—an essential instrumentality in carrying this thing out," the government attorney told the jury.

"How the proof actually developed was this:

"The major companies were buying at the market. The prices they paid made the market go up, because, if they hadn't bought that gasoline at the market, that gasoline would have been sold in independent transactions between jobbers and refiners.

"Any one purchase on the market affects the market, as Col. Donovan said. But when you have the combined action of all these defendants, working together, buying up all the gasoline that might otherwise be sold under the market, buying that up—that, I say, and as the evidence I am going to read to you will show, is what actually made this price go up."

The trade journals may not have co-operated with the major companies, but they remained the "essential instrumentality," Chaffetz added.

"And the fact that the trade journals have proved that they weren't guilty is no indication at all, gentlemen, that the defendants themselves don't remain guilty exactly in the way the government originally charged," he told the jury, pointing out that the allegations about the trade journals were in a separate paragraph of the indictment and contending that what remained "still charges a full and complete case against the remaining defendants."

It doesn't make any difference now, Chaffetz argued, whether the trade journals published prices paid by the jobbers to independent refiners, or whether they published the prices paid by the major companies.

"Whatever gasoline was bought on that spot market during that time was bought at a price that was rigged by reason of the activities of these defendants, whose purpose in buying that gasoline was to make that market go up," he declared.

Concerning other factors in the 1935 tank car market, he contended that the "flood of 'hot' oil" in January and February amounted to only 318 cars of gasoline coming into the Standard of Indiana territory, citing testimony that the defendants had purchased 600-700 cars a month in East Texas, alone.

Besides, he said, "hot" oil was a question for the government—not the defendants—to deal with and was dealt with in the Connally Law.

As for increased consumption being a factor in the price rise, he cited defendant-company letters to the ef-

fect that jobber demand was slow. Allocations and inventory control expired with the code; retail price wars were practically cleared up by December, 1934—before the buying started, he continued.

The companies didn't act independently, or buy at any price that they could, Chaffetz charged, declaring "Jacobi testified about his price recommendation."

"Not only did the major companies know what the 'recommended price' was, but the independent refiners knew it, too," he said a moment later. He charged that the independents knew "that during the following week any gasoline that they couldn't sell at that price, the major companies would take off their hands."

"Now, suppose you were an independent refiner," Chaffetz suggested to the jurors, "and you were in that position, selling gasoline on the open market; and you knew that any of your gasoline that you couldn't sell at 4.75 cents, these major companies would take from you—what price would you fix on the open market in your sales to jobbers? Would you sell to them for less than that? No.

"What you would do is, you would sell for more than that, if you could —knowing always that if you didn't get away with it, if you couldn't get that price, the major companies would take it."

Chaffetz declared that during the price rise of 1935 the jobbers were not getting a 5.5-cent margin. He pointed out that the defendants had not called a single jobber as a witness in their defense.

When a group of companies has substantial power, and combines, and then raises the price, it is a Sherman Law violation, said Chaffetz, touching on an argument made by his colleague, Lewin.

As for "good faith," the government attorney said that there was no evidence that anything done after the code was reported to anyone, until the Madison grand jury began investigating.

He called attention to a press statement by Ickes while attending the American Petroleum Institute meeting Nov. 14, 1935, at Dallas, quoting the then oil administrator as saying, "The present buying program is illegal and it is suspended."

Then, the government attorney compared testimony about details of the buying "plan" with the so-called Sus memorandum about the Feb. 11, 1935, meeting.

The Sus memorandum stated, Chaffetz told the jury, that a report was made "to the effect that a movement is under way which will take the East Texas surplus gasoline off the market so that it will not be a disturbing influence in the Standard of Indiana territory.

Further on, the memorandum, read to the jury by Chaffetz, said "the program of the committee involves 14 major companies, each selecting one or more of these 15 small refining companies, and the major company obligating itself to take whatever surplus gasoline this small refining unit will have from time to time."

Chaffetz also cited a reference that "a steering committee would guide and control, periodically, the prices to be paid for this surplus gasoline by the major company to the small refinery."

He cited the April 2, 1935, letter of Ickes to Arnott, asking:

"If the secretary thought that this moratorium for a temporary period of time in Chicago might be illegal, what would the secretary have thought if Mr. Arnott had come to him with the Sus memorandum?"

In closing his argument, Chaffetz discussed the oil companies which were dismissed from the case.

Crawford Closes Jury Arguments

Last argument of the trial was by William P. Crawford, Superior, Wis., lawyer hired by the government for this trial.

For the better part of an hour, Crawford just rambled around. He pointed out that the audience must be made up largely of the defendants and their friends, and the "difficulty" he had in talking in the presence of such an audience. He lauded the court, the marshals and bailiffs, Wisconsin juries —with whom he has had long experience, the defendants and their counsel.

Calling them by their first names and beaming with apparent friendliness, Crawford would ask a defendant or a defense lawyer to stand up, then the government attorney would comment to the jury on his "good looks" or declare how much he liked the man.

At times, there was a barb buried in Crawford's "friendly" thrusts at opposing counsel.

When he came to the government attorneys he likened them to "crusaders of old." He went through the whole government legal staff at Madison tossing "roses" even to the four stenographers in the office.

The elderly lawer chided Brazeau, defense attorney, for his charge that Government Counsel Lewin was trying to "poison" the minds of the jury.

"You don't think any of these boys —I call them boys," Crawford declared, "would have any such thought as that in their minds, do you?

"Because they are fully conscious of the position that they occupy here, that their duty is not only to prosecute this case with the vigor and the courage and the fearlessness and the honesty which it demands so as to bring the guilty to justice and release the innocent, but it has been also the consideration of the defendants as well," Crawford continued.

"Now, you don't think there is any of these men that would deliberately put anything into the case hurtful, with the thought in mind that this would poison the minds of the jury or prejudice them against these de-

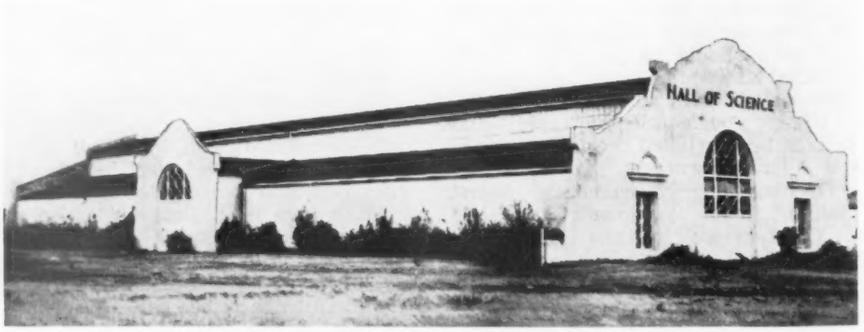
New Buildings for Tulsa Expo

(*Continued from page* 33)

been sold 60 per cent more exhibit space than was sold for the entire last Exposition, held in 1936. On Jan. 1, 476 exhibitors had already contracted for space, an increase of 80 over the total number exhibiting at the 1936 show.

Outside space this year will total 153,365 square feet as compared with 103,700 square feet for the 1936 show. All told there will be approximately 237,600 square feet, as compared with 148,500 square feet of exhibit space in 1936.

Attendance this year is expected to reach 200,000, which would be approximately 50,000 above the 1936 total attendance figure.



Technical exhibits having outgrown the building in which they were housed for a number of years, the Exposition officials acquired this large building from the Tulsa Fair Assn. and have rehabilitated it to house the $250,000 scientific exhibit at the 1938 show. The building is just outside the present Exposition grounds

NEW GENERAL PETROLEUM Truck Tank equipped with S&J Safety Valves

Built by Advance Auto Body Works of Los Angeles

THIS new cab over engine truck is one of several General Petroleum Corporation has put on the highways to meet the heavy demand for Mobilgas Gasoline on the Pacific Coast.

To operate safely is the eminent desire of this oil company, that is why this new Mobilgas Tank Truck, built by the Advance Auto Body Works, is equipped with S. & J. Hydraulic Internal Valves.

Mr. C. F. Chambers of the Advance Auto Body Works says, "S. & J. Safety Valves are specified equipment on units turned out for General Petroleum Corporation, as well as for other oil companies interested in transportation safety."

This is one of four different types of S. & J. Internal Safety Valves, suitable for any type of internal mounting. Furnished in bronze or aluminum in sizes from 1¼ to 6 inches.

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fendants. And I hope you don't think that I would do that," he added.

Sandwiching in a homely joke now and then, Crawford touched occasionally on arguments of the defense.

"Now just between yourselves," he asked the jury, "do you honestly think that these boys here (pointing to the government counsel table) fired with the enthusiasm of crusaders, as I say, and having given to this case every ounce of mental and physical strength they have, and I myself have contributed, also, would be trying to convict these men unless that was the wish and the desire of the highest officials in the government of the United States?"

Defense counsel objected that this was prejudicial; but were overruled. A few minutes later they objected again when Crawford said that this case was brought with the "consent and approval" of the secretary of interior.

Another objection resulted when Crawford made reference to "malefactors of great wealth." Judge Stone said that on this angle, he would take care of it by his instructions to the jury.

Crawford rambled back to the days of the old, frame courthouse, telling the middle-aged jury about the "great big stove in the back." He criticized tactics of defense counsel, citing one instance which he said was "one of the oldest rackets in the game."

The jury was told not to get "hot and bothered" about the charts, with Crawford declaring that "these people have an idea that if they want to show that there was 100 gallons of gasoline some place and that there was 50 of them bought by the major companies, they had to put it on a chart up there so you could see that 50 gallons taken away from 100 left 50."

Referring to "Ted" Brazeau as the "boy they always send out to get the farmers' votes down at Wisconsin Rapids," Crawford told the jury, "so, they looked you over, and they thought, 'Well, it's a pretty good place for Ted to get some votes again from the farmers.' "

Continuing, Crawford said he thought "Ted has gone a little ritzy on getting into the company of all those millions."

"It would be surprising in New York, if I ever get there," Crawford added, "to see him coming out of a ritzy hotel, with a high hat on, a white scarf, and tie and tails, and all that sort of thing."

In his rambling fashion, the government attorney picked out elements in the government's case, most of which had been touched on by his colleagues, gave them a personalized touch and tossed them to the jury.

He dismissed the "expert testimony" of defense witnesses with the remark that, "there is a plain liar, the damn liar and the expert witness — and of them all, the expert witness is the worst."

Coming to the end of his argument, Crawford charged that defense counsel "haven't overlooked anything, little or big, by which they might reach some responsive emotion in your minds."

"My hat is off to Col. Donovan," he added, "for the fight that he put up here, against tremendous, insurmountable odds — shooting in testimony which could have about the same effect as shooting paper balls at the Rock of Gibraltar."

Crawford then paid tribute to the men who worked with him, adding "there has arisen in my heart and in my mind a regard and an affection for them that, as I am stumbling down the western slope of life toward the setting sun, I hope to get a morsel of comfort and consolation out of the hope and belief that I have engendered in their hearts and minds a similar feeling."

He thanked the jury for their "kind attention," adding that he would undertake to throw no more bouquets towards the bench.

"I have taken a lot of liberties here with his Honor, Judge Stone, in busting in once in awhile, as you noticed; but he knows me so well that he thought it was all right."

Another hundred words thanking the jury, and telling them that they need not take long to reach their verdict, and Crawford completed his argument.

Paraffinicity Test Aids Detect Penn. Grade Oils

CLEVELAND, Jan. 22—

Five little Penn oils
For sale in a store,
One wasn't Pennsylvania;
Then there were four.

With a newly developed paraffinicity test for identifying the crude source of a motor oil, the Pennsylvania Grade Crude Oil Assn. expects to sing this little ditty even more gaily than before.

Known as the paraffinicity Index, the new test procedure was developed recently in the Pennsylvania State College laboratory, it is stated in the January issue of *Penn Grade Bulletin*. This is now the fifth test method to be adopted by the association to assist in its unrelaxing vigilance in policing the market against motor oils fraudulently identified as coming from Pennsylvania.

Details of the procedure for the new test will not be made generally public, since it may assist unprincipled chemists to further mislead the public, according to J. E. Moorhead, executive secretary of the association. The other four tests—viscosity index, gravity index, boiling point index, and optical index—were described in detail in an article by Dr. M. R. Fenske in the *Penn Grade Bulletin* for June, 1933.

To illustrate the accuracy of the test, the laboratory has compiled a table showing the ordinary physical specifications of eight neutrals similar enough to make it difficult for the casual observer to determine whether any of these products were other than Pennsylvania. When the paraffinicity test was applied, the laboratory was able to show in much less time than is necessary to run the ordinary tests that not one of them came from Pennsylvania, according to the association's statement.

Plus-Sale Winners Are Announced

TULSA, Jan. 24.—Winners in the plus-sales contest conducted last fall in connection with the Independent Refiners Service Corp.'s (Sovereign Service) fall merchandising campaign were announced in the January issue of "The Sovereign Scroll."

Henry Schumacher, operating Schumacher's Service Station at Belleville, Ill., won first prize of $100 in the first bracket. He was assisted by Charles Schumacher, Clement Voelkel and Dan Duncan, employes at the station.

First prize of $100 in the second bracket was won by Bartles-Shepherd Oil Co.'s station at Sixth St. and Commercial Ave., Waterloo, Ia. The men at the station who helped win the prize were Henry Schneider, manager, Kenneth Stephens, Arthur French, and Melvin Stephens.

B. B. Kern and Dan Hayes, of the K-T Oil Corp.'s station at Anthony, Kans., won first prize of $100 in the third bracket.

A total of $2100 in cash prizes was awarded to 69 service station operators. The contest was based on sales of merchandise by dealers. The contesting stations were grouped into three brackets according to gallonage in order that all station operators would have an equal chance.

Second place money amounting to $50 each were awarded to the following:

First bracket—Shaws Service, Fifth and Broadway, Enid, Okla.; Eason Oil Co., 112 N. Washington, Enid, Okla.; Dixie Oil Co., Salina, Kans.; and Clarinda Oil Co., Clarinda, Ia.

Second bracket—Burow Bros., Humbolt, Kans.; Bush Motor Co., Eureka, Kans.; Eason Oil Co., 231 W. Maple, Enid, Okla.; Kent Oil Co., Oberlin, Kans.

Third bracket—E. W. Thornhill, Cunningham, Kans.; Independent Oil Co., Lebanon, Kans.; J. J. Smith, Smith Center, Kans., and Byal Oil Co., Ness City, Kans.

Prizes of $20 each were awarded in the third bracket.

Darrel C. Davison, of the Clarinda Oil Co., Clarinda, Ia., one of the $50 prize winners, reported that a comparison of results of the 1937 campaign with the 1936 campaign revealed a 39 per cent gain in gasoline volume; 39 per cent gain in motor oil and 241 per cent gain in grease sales; 54 per cent increase in lubrication jobs and 21 per cent gain in anti-freeze sales.

Markets

At A Glance . . .

MID-CONTINENT: Gasoline movement light.

GULF COAST: Foreign gasoline inquiries received.

EASTERN SEABOARD: Price shading in gasoline reported.

MID-WESTERN: Kerosine and range oil strong.

PENNSYLVANIA: Active demand for cylinder stocks.

CALIFORNIA: Motor fuel quotations easier.

Coastal

NEW YORK, Jan. 14.—Interest in the gasoline cargo market at the America Gulf for foreign shipment came to life somewhat early in the week ended Jan. 22, with an inquiry for a mixed cargo of approximately 70,000 barrels of 375 and 390 end point gasoline by a French buyer.

Export gasoline prices were reduced 0.125 cent Jan. 17 when one supplier reported it was quoting lower prices, and other sellers indicated that these lower prices would have to be met if they wished to obtain business.

It was understood that the French inquiry specified lower prices than those current the week ended Jan. 15.

Some traders here said that while this buying inquiry was nothing to throw hats in the air about, it did serve to give rise to the belief in a renewal of active foreign trading, which for the past month has been at a standstill.

There was virtually nothing moving in domestic trade in the open market, according to traders reports. Prices at the Gulf and current transportation costs preclude active movement from this source, they said.

Mixed sentiment regarding the Bunker oil market appeared last week. Some traders said it would be difficult to make a cargo at 80 cents. Others reported this oil relatively free at that figure.

Mid-Western

CHICAGO, Jan. 24.—The current spell of varying and unsettled temperatures in the Chicago area has been somewhat detrimental to both the gasoline and light fuel market, sellers reported. Although prices for gasoline, both low and high octane, have remained on an even keel, marketers reported that poor driving conditions, seasonal drop-off in sales volume and general business recession are all factors in keeping gasoline market at rather low ebb.

Michigan refiners reported fair movement of straight run gasoline during the past week. Evidence of wider differential in price range on straight run gasoline was reported. Higher octane gasoline commanded most of gasoline trade attention, Michigan refiners said.

Kerosine continued to be closely held, majority of Chicago marketers said. Rumors of soft spots in the market were heard from time to time, however.

A decided shortage of kerosine was reported by Michigan refiners. Demand was exceptionally strong, they said.

Range oil continued strong as a whole both in the Michigan and Chicago markets and still offered at a premium, it was generally reported. Tapering off in demand, however, was occasionally reported in the Chicago region.

Pennsylvania

CLEVELAND, Jan. 24.—Continued active demand for cylinder stocks stood out rather prominently in an otherwise dull refinery market in western Pennsylvania the past week. Prices of some grades of dark stock were higher.

Kerosine and fuel oil remained scarce. Movement of gasoline was reported slightly better while neutral oils were quiet.

Refiners reported heavy demand from exporters for dark cylinder stocks throughout the week. Toward the end of the week the call for bright stock from exporters also became rather persistent.

Large quantities of both the dark and bright stocks changed hands in inter-refinery transactions as well as in export deals. There was some improvement in contract shipments to jobbers, refiners said, but open market business was light.

Kerosine and fuel oil continued to be the most active of the refined oil list. Two refiners reported they were getting caught up on shipments and they were no longer buyers because of an oversold position. At the same time no price shading was reported and in some instances slight premiums were said to have been obtained where shipment could be made immediately.

Demand for wax was quiet but prices appeared steadier.

N.P.N. Gasoline Index

	Dealer T.w. Cents per	Tank Car gal.
Jan. 24	10.20	5.96
Month ago	10.27	6.01
Year ago	10.21	6.23

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 12 wholesale markets for regular-grade gasoline.

Mid-Continent

TULSA, Jan. 24.—Natural gasoline prices dropped 0.375 to 0.50 cent last week as supplies outdistanced demand. Export and coastwise demand was slow in developing and domestic demand was insufficient to care for output. Lower prices were quoted in order to keep natural moving out. Between 100 and 150 cars were moved out at the lower prices late in the week.

Jobber demand acted as a brake on the downward trend of Oklahoma natural gasoline prices, traders said. With jobber takings fairly heavy, offerings from Oklahoma were light and price reductions less drastic.

Tank car shipments of refined gasoline from Mid-Continent plants were light, according to most refiners. Movement against contract was "about normal," they said. But open market demand was light. Supplies were piling up at some refineries. Prices, however, generally were unchanged.

Kerosine continued in good shape. Prices generally were steady.

Price shading of Mid-Continent and South Texas lube quotations continued to be heard. Reports, however, could not be confirmed.

Eastern

NEW YORK, Jan. 24.—Gasoline markets along the eastern seaboard were featured by price shading the week ended Jan. 17, resulting, traders said from a combination of slower consumptive demand and excess gasoline stocks.

A cross-section of jobbers at northern seaboard and inland points indi-

REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). Prices in cents per gallon, except heavy fuel oils in dollars per barrel, tank car lots, f.o.b. refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included, unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Gasoline *and* Naphtha

Prices Effective	Jan. 24	Jan. 17
OKLAHOMA		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	4.00 – 4.25	4.00 – 4.25
63-66 oct.	4.375– 4.50	4.375– 4.50
67-69 oct.	4.625– 4.875	4.625– 4.875
70-72 oct.	4.875– 5.25	4.875– 5.25
60-62, 400 e.p.	(a)4.00 –4.25	(a)4.00 –4.25
64-66, 375 e.p.	(a)5.00 –5.125	(a)5.00 –5.125
68-70, 350-360 e.p.	(a)5.125–5.25	(a)5.125–5.25
WESTERN PENNA.		
Bradford-Warren:		
Motor gasoline:		
Min. 65 oct.	6.75 – 7.25	6.75 – 7.25
Other districts:		
54-56 naphtha	(a)4.625	(a)4.625
Motor gasoline:		
U. S. Motor (58-62°)	4.625– 4.875	4.625– 4.875
Min. 65 oct.	6.50 – 7.00	6.50 – 7.00
CENTRAL MICHIGAN (Prices f.o.b. Cent. Mich. refinery group basis, for shipment within Michigan. Shipments, however, may originate at plants outside Central group).		
Str.-Run Gasoline	(d)5.00 –5.50	(d)5.25 –5.50
64-66 octane gas	7.75 – 8.00	7.75 – 8.00
68-70 octane gas	8.125– 8.50	8.125– 8.50
(d)Excluding Detroit shipment.		
CALIFORNIA (3c tax to be added to prices if used in state)		
U. S. Motor:		
54-58, for instate shipment	7.00 – 9.25	7.00 – 9.25
54-58, for outside state shipment	8.00 – 9.00	8.00 – 9.00
58-61, 375-400 e.p., 65 oct. & above	8.75 – 9.75	8.75 – 9.75
(c)N. TEX. (For shipment to Texas and N. Mex. destinations; Group 3 prices quoted on northern shipments).		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	(a)4.50 –4.875	(a)4.50 –4.875
63-66 oct.	(a)5.00 –5.375	(a)5.00 –5.375
67-69 oct.	(a)5.375–5.75	(a)5.375–5.75
70-72 oct.	(a)5.625–6.00	(a)5.625–6.00
60-62, 400 e.p.	(a)4.625–4.875	(a)4.625–4.875
KANSAS (For Kansas destinations only)		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	4.375– 4.50	4.375– 4.50
70-72 oct.	5.375– 5.50	5.375– 5.50
(c)W. TEX.		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	4.625– 4.75	4.625– 4.75
63-66 oct	5.125– 5.25	5.125– 5.25
67-69 oct.	5.50 – 5.625	5.50 – 5.625
70-72 oct.	5.875	5.875
(c)E. TEX.		
60-62, 400 e.p.	(a)4.00 –4.125	(a)4.125–4.25
N. LA. (For shipment within La. & into Ark.)		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	4.50 – 4.75	4.50 – 4.75
63-66 oct.	4.625– 4.875	4.625– 4.875
67-69 oct.	5.00 – 5.25	5.00 – 5.25
70-72 oct.	5.50	5.50
ARKANSAS (For shipment within Ark. & into La.)		
U. S. Motor: (Octane Test L-3)		
62 octane & below	(b)4.50	(b)4.50
67-69 oct.	(b)5.00	(b)5.00
OHIO (Quotations of S. O. Ohio. Delivered anywhere in Ohio).		
U. S. Motor	7.625	7.625
Above 65 oct.	7.875	7.875

Natural Gasoline

(Prices are those to blenders on freight basis shown below. Shipments, however, may originate in other Mid-Continent manufacturing districts, such as Panhandle Texas, S. W. Texas or Kans.)

Prices Effective	Jan. 24	Jan. 17
F.O.B. GROUP 3		
Grade 26-70	2.50 – 2.625	3.00
(a)Nominal.		
(b)Only one refiner quoting.		
(c)Refiners report they generally receive from 0.25c to 0.5c per gal. more for gasoline & kerosine for local or differential territory shipment.		
Natural Gasoline (Cont'd)		
F.O.B. BRECKENRIDGE		
Grade 26-70	2.50	3.00
CALIFORNIA (F.o.b. plants in Los Angeles basin)		
75-85, 350-375 e.p. for blending	7.50 – 7.75	7.50 – 7.75

Kerosine

WESTERN PENNA.		
Bradford-Warren:		
45 w.w.	5.50 – 5.75	5.50 – 5.75
46 w.w.	5.625– 5.875	5.625– 5.875
47 w.w.	5.75 – 6.00	5.75 – 6.00
Other districts:		
45 w.w.	5.375– 5.50	5.375– 5.50
46 w.w.	5.50 – 5.625	5.50 – 5.625
47 w.w.	5.625– 5.75	5.625– 5.75
CENTRAL MICHIGAN (Prices f.o.b. Cent. Mich. refinery group basis, for shipment within Michigan. Shipments, however, may originate at plants outside Central group.)		
47-49 w.w.	5.55 – 5.80	5.55 – 5.80
OKLAHOMA		
41-43	4.25 – 4.50	4.25 – 4.50
42-44 w.w.	4.25 – 4.625	4.25 – 4.625
KANSAS (For Kansas destinations only).		
41-43 w.w.	4.50 – 4.625	4.50 – 4.625
42-44 w.w.	4.625– 4.75	4.625– 4.75
(c)N. TEX. (For shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).		
41-43 w.w.	4.50	4.50
(c)E. TEX.		
41-43 w.w.	(a)4.125	(a)4.125
N. LA. (For shipment within La. and into Ark.)		
41-43 w.w.	4.50 – 4.625	4.50 – 4.625
ARK. (For shipment within Ark. and into La.).		
41-43 w.w.	(b)4.625	(b)4.625
CALIFORNIA		
40-43 w.w.	6.00 – 7.00	6.00 – 7.00

Gas *and* Fuel Oils

WESTERN PENNA.		
Bradford-Warren:		
36-40	5.25 – 5.375	5.25 – 5.375
Other districts: (Excluding Pittsburgh District Prices).		
36-40	4.875– 5.00	4.875– 5.00
CENTRAL MICHIGAN (Prices f.o.b. Cent. Mich. refinery group basis, for shipment within Michigan. Shipments, however, may originate at plants outside Central group.		
P.W. Distillate	5.25 – 5.50	5.25 – 5.50
No. 3 gas oil, str.	4.625– 5.00	4.75 – 5.25
U.G.I. gas oil	4.25 – 4.625	4.50 – 4.625
Fuel Oils (Vis. at 100):		
500-700 Vis.	2.375– 2.75	2.625– 2.875
300-500 Vis.	2.50 – 3.00	2.75 – 3.25
100-300 Vis.	3.25 – 3.375	3.25 – 3.375
OKLAHOMA		
No. 1 white	4.125– 4.25	4.125– 4.25
No. 1 straw	4.125	4.125
No. 2 straw	3.875– 4.00	3.875– 4.00
No. 2 dark	3.75 – 3.875	3.75 – 3.875
U. G. I. gas oil	(a)3.00 –3.375	(a)3.00– 3.375
28-30 zero	3.625– 3.75	3.625– 3.75
28-30	(b)$1.35	(b)$1.35
24-26	(b)$0.875-$0.925	(b)$0.875-$0.925
18-22	(a)$0.825-$0.875	(a)$0.825-$0.875
14-16	(a)$0.80 -$0.85	(a)$0.80 -$0.85
KANSAS (For Kans. destinations only).		
No. 1 p.w. fuel oil	4.375– 4.50	4.375– 4.50
10-14 fuel oil	$0.675-$0.70	$0.675-$0.70
N. TEX. (For shipment to Texas and N. Mex.; Group 3 prices quoted on northern shipments).		
No. 1 white	(a)4.25	(a)4.25
U. G. I. gas oil	2.75 – 2.875	2.75 – 2.875
24-26	$0.85 –$0.875	$0.85 –$0.875
18-22	$0.80 –$0.825	$0.80 –$0.825
N. LA. (For shipment within La. and into Ark.).		
No. 2	3.625– 3.75	3.625– 3.75
20-24	$1.10 –$1.15	$1.10 –$1.15
16-20	$0.95 –$1.00	$0.95 –$1.00
10-14	$0.80 –$0.85	$0.80 –$0.85
ARK. (For shipment within Ark. and into La.).		
No. 2	(b)4.00	(b)4.00
28-30 gas oil, zero	(b)3.75	(b)3.75
CALIFORNIA		
San Joaquin Valley:		
Heavy fuel	$0.60 –$0.85	$0.60 –$0.85
Light fuel	$0.85 –$0.95	$0.85 –$0.95
Diesel fuel (per gal.)	3.75 – 5.00	3.75 – 5.00
Stove dist. (per gal.)	4.00 – 7.00	4.00 – 7.00
Los Angeles		
Heavy fuel	$0.65 –$1.00	$0.65 –$1.00
Light fuel	$0.85 –$1.10	$0.85 –$1.10
Diesel fuel (per gal.)	3.50 – 5.00	3.50 – 5.00
Stove dist. (per gal.)	3.75 – 7.00	3.75 – 7.00

Prices Effective	Jan. 24	Jan. 17
Gas and Fuel Oils (Cont'd		
San Francisco:		
Heavy fuel	$1.05	$1.05
Light fuel	$1.15	$1.15
Diesel fuel (per gal.)	5.50	5.50
Stove dist. (per gal.)	7.50	7.50

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Neutral Oils

WESTERN PENNA.

Viscous Neutrals (Viscosity at 70° F.)

200 Vis. (180 at 100°) No. 3 col., 420-425 fl.:		
0 p.t.	20.50 –21.00	20.50 –21.00
10 p.t.	19.50 –20.00	19.50 –20.00
15 p.t.	19.00 –19.50	19.00 –19.50
25 p.t.	17.00 –17.50	17.00 –17.50
180 Vis. (165 at 100) No. 3 col., 410-415 fl.:		
25 p.t.	16.00 –16.50	16.00 –16.50
150 Vis. (143 at 100) No. 3 col., 400-405 fl.:		
0 p.t.	17.50 –18.00	17.50 –18.00
10 p.t.	16.50 –17.00	16.50 –17.00
15 p.t.	16.00 –16.50	16.00 –16.50
25 p.t.	15.00 –15.50	15.00 –15.50

SOUTH TEXAS

Vis. Color		
Pale Oils: (*Vis. at 100° F.; p.t.* 0)		
100 No. 1½-2½	5.00 – 5.50	5.00 – 5.50
200 No. 2-3	6.75 – 7.25	6.75 – 7.25
300 No. 2-3	7.25 – 7.75	7.25 – 7.75
500 No. 2½-3½	8.25 – 8.75	8.25 – 8.75
750 No. 3-4	8.75 – 9.25	8.75 – 9.25
1200 No. 3-4	9.25 – 9.75	9.25 – 9.75
2000 No. 4	9.50 –10.00	9.50 –10.00
Red Oils:		
200 No. 5-6	6.75 – 7.25	6.75 – 7.25
300 No. 5-6	7.25 – 7.75	7.25 – 7.75
500 No. 5-6	8.25 – 8.75	8.25 – 8.75
750 No. 5-6	8.75 – 9.25	8.75 – 9.25
1200 No. 5-6	9.25 – 9.75	9.25 – 9.75
2000 No. 5-6	9.50 –10.00	9.50 –10.00

Note: South Texas red oil prices shown above cover oils with green cast; blue cast red oils are slightly lower in some cases.

MID-CONTINENT (Vis. at 100° F.; F.o.b. Tulsa basis).

(0 to 10 P.P.)

Vis. Color		
Pale Oils:		
60-85—No. 2	5.50	5.50
86-110—No. 2	6.00	6.00
150—No. 3	9.00	9.00
180—No. 3	10.00	10.00
200—No. 3	10.50	10.50
250—No. 3	11.50	11.50
280—No. 3	12.50	12.50
300—No. 3	13.00	13.00
Red Oils:		
180—No. 5	9.00	9.00
200—No. 5	9.50	9.50
250—No. 5	10.50	10.50
280—No. 5	11.50	11.50
300—No. 5	11.75	11.75

Note: Viscous oils, 15-25 p.p., generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils. Viscous oils (150-300 vis.), No. 4 color, generally are quoted 0.5c above No. 5 color oils.

CHICAGO (Vis. at 100° F.)

Pale Oils (c)0 to 10 p.p.:

Vis. Color		
60-85—No. 2	7.25	7.25
86-110—No. 2	7.75	7.75
150—No. 3	10.00	10.00
180—No. 3	11.00	11.00
200—No. 3	11.50	11.50
250—No. 3	12.50	12.50
Red Oils:		
180—No. 5	10.00	10.00
200—No. 5	10.50	10.50
250—No. 5	11.50	11.50
280—No. 5	12.50	12.50
300—No. 5	12.75	12.75

(c)Viscous oils, 15 to 30 p.p. are quoted 0.5c lower, 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p. are quoted 0.25c lower. To obtain delivered prices in Chicago, add 0.25c per gal.

Cylinder Stocks

MID-CONTINENT (F.o.b. Tulsa basis)

Bright Stocks:		
190-200 Vis. at 210° D	19.00	19.00
150-160 Vis. at 210° D		
0 to 10 p.p.	16.00	16.00
10 to 25 p.p.	15.00 –15.50	15.00
25 to 40 p.p.	15.00	15.00
150-160 vis. at 210° F	15.00	15.00

Marathon Lubricants have shown a steady increase in sales, regardless of general business conditions, indicating an increasing preference by motorists everywhere.

This has been due to the excellence of Marathon Lubricants and the methods of merchandising, distribution, advertising and sales policies.

Jobbers with Marathon Products to sell can be sure of getting their share of the sales ---- and profits! Investigate now! Write, Phone or Wire for complete particulars.

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THE OHIO OIL COMPANY

GENERAL OFFICES - - - - FINDLAY, OHIO

ROBINSON, ILLINOIS TULSA, OKLAHOMA FT. WORTH, TEXAS

cates that gasoline volume at retail stations would be off approximately 10 per cent for January of this year as against January, 1937.

In New Jersey a state inspection law requiring all cars to pass certain safety tests has resulted, distributors said, in taking from the state highways many of the older cars which normally would be in use.

Jobbers in other states credited the general business recession and in some cases bad road condition for the drop in consumption.

Open market trading, both in tank cars and in barges was at a standstill the week ended Jan. 17.

Reports of unusual amount of price shading in the Baltimore and Boston markets continued to persist last week. General prices, however, were unchanged.

Wax

NEW YORK, Jan. 24.—Slight activity continued to be apparent in wax markets, for export or domestic shipment, and the market felt the effects of widespread price shading. Lower quotations, however, were extremely difficult to substantiate.

Unconfirmed reports of white crude scale being offered at 2.30 cents were heard. Sellers in the field, however, insisted that 2.45 cents was the lowest actual price recorded in the market for white scale.

Domestic prices for refined wax were well held. Shading, however, of fully refined prices for foreign movement was heard.

California

LOS ANGELES, Jan. 21.—No important changes were made in wholesale or retail prices the past week on Pacific Coast petroleum markets. Supplies of burning oils continued in excess of the effective demand and surplus stocks of these products in the hands of independent refiners in the Los Angeles Basin area were responsible for the softness of the market. The prevailing price of gas oil at independent plants in the Basin area was $1.20 per barrel.

Gasoline quotations also were easier with a downward trend noted in retail prices at split-pump accounts in the metropolitan Los Angeles district. Gasoline tank truck and trailer prices were maintained at former levels, but small quantities of competitive brands of gasoline were reported available at fractionally under 7.5 cents a gallon, exclusive of tax.

Export shipments of crude and refined products to the Orient provided the only activity in the seaboard market. Most of these movements were made under contract or as intercompany transactions. Shipments of diesel oil were reported at $1.50 per barrel.

Fuel Oil . . . . .

TULSA, Jan. 24.—No. 1 fuel oil prices were easier in the Mid-Continent last week as mild weather cut into consumption. Brokers reported buying prices had dropped 0.0625 cent. No. 1 p.w. grade was freely available to distributors at 4.125 cents Group 3.

Nos. 2 and 3 oils were more closely held than the No. 1 grade. Output of these oils was small and most suppliers had large portion of their make contracted. As result, prices for these grades were steady.

Survey made by one Mid-Continent refiner indicated heating oil consumption so far this season was about on par with last season. This was attributed to increased number of burner installations, rather than to per-unit consumption equal to last year.

Heavy fuel shipments have increased only slightly the past week. Stock continued heavy. Refiners reported industrial demand was not up to expectations.

* * *

NEW YORK, Jan. 24.—Fuel oil markets along the eastern seaboard were without feature the third week of January.

Distributors said that consumer demand for domestic heating oil has fallen off with the rise in temperatures, particularly at northern seaboard points.

The general business recession has resulted in a continued slack demand for industrial grades of fuel oils, sellers here reported.

Tank car and barge movement of light or heavy fuel was not particularly active during the week, according to traders reports.

* * *

CHICAGO, Jan. 21.—Light fuels continued in good position throughout the week, marketers reported. While burner fuels were increasingly more available, sellers said that with the exception of price shading on p.w. distillate, prices remained steady.

Light fuels were dominant in Michigan market refiners reported and difficult to obtain.

Heavy fuels were reported listless and burdensome in Chicago district, with buying light.

Michigan refiners also reported lack of activity in heavy fuel market although resumption of activity in a few of the regional steel plants prompted some movement. One Michigan refiner, in particular, stated that his heavy fuel inventory was practically cut in half since the first of January.

Prairie Cities Oil Sold

TORONTO, Jan. 24.—North Star Oil, Ltd., has purchased the Prairie Cities Oil Co. for $300,000 cash and assumption of all liabilities, including $415,000 mortgage goods of Petroleum Realty Corp., subsidiary of Prairie Cities. Class A shareholders of Prairie Cities Oil Co. are expected to receive approximately $6 per share in cash.

TANK WAGON MARKETS, HEATING OILS

Prices in Effect Jan. 24, 1938

Following are tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.

	No. 1	No. 2	No. 3	No. 4
S. O. NEW JERSEY				
Newark, N. J.	*	7.00	7.00	7.00
Atlantic City, N. J.	*	7.00	7.00	7.00
Baltimore, Md.	8.00	7.00	7.00	7.00
Washington, D. C.	8.50	7.75	7.75	7.75
SOCONY-VACUUM OIL CO. INC. (S. O. New York Division)				
New York City	*	7.50	7.50	7.50
Albany, N. Y.	*	7.50	7.50	7.50
Rochester, N. Y.	*	7.50	7.50	7.50
Boston, Mass.	*	7.00	7.00	7.00
Bangor, Me.	*	8.00	8.00	8.00
Manchester, N. H.	*	7.50	7.50	7.50
Burlington, Vt.	*	8.00	8.00	8.00
Hartford, Conn.	*	7.00	7.00	7.00
New Haven, Conn.	*	7.00	7.00	7.00
Providence, R. I.	*	7.00	7.00	7.00

*Prices for No. 1 fuel in S. O. New Jersey and Socony-Vacuum territories same as for kerosine which see in tank wagon table for various cities: prices change with kerosine.

	No. 1	No. 2	No. 3	No. 4
ATLANTIC REFINING				
Philadelphia, Pa.	7.75	7.00	7.00	7.00
Allentown, Pa.	8.25	7.50	7.50	7.50
Wilmington, Del.	8.25	7.50	7.50	7.50
ATLANTIC REFINING Cont'd				
Springfield, Mass.	9.00	7.50	....	7.50
Worcester, Mass.	9.00	7.50	....	7.50
Hartford, Conn.	9.00	7.50	....	7.50
S. O. OHIO				
Columbus Division and Cleveland	7.50	7.50	7.00	....
City of Lima	8.00	8.00	7.00	....
Rest of Ohio	8.00	8.00	7.50	....

Note: S. O. Ohio prices are for full compartment hose dumps, bucket dumps are 0.5c per gallon higher.

S. O. INDIANA
Stanolex Fuel and Furnace Oils

	No. 1 Fuel	Stanolex Furnace
Chicago	†8.8	7.00
Indianapolis	...	*11.8
Detroit	...	7.1
Milwaukee	8.1	7.4
Minneapolis	7.5	7.5
Sioux City	7.2	7.2
St. Louis	7.5	6.8
Kansas City	6.6	6.6

*Includes state tax of 4c.
†This price applies to 1 to 99 gals. deliveries; 150 gals. and over, 7c.

Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations.

REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days) unless otherwise stated. Prices in cents per gallon, except heavy fuel oils in dollars per barrel, wax and petrolatums in cents per pound in barrels, tank car lots, f.o.b. refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted

Cylinder Stocks (cont'd)

Prices Effective	Jan. 24	Jan. 17
Mid-Continent (cont'd)		
120 Vis. at 210° D:		
0 to 10 p.p.	15.125-15.25	15.125
10 to 25 p.p.	14.50	14.50
25 to 40 p.p.	14.25	14.25
600 S.R. Dark Green	5.00 – 7.50	5.00 – 7.50
600 S.R. Olive Green	7.00 – 9.50	7.00 – 9.50
631 S.R.	(b)12.50	(b)12.50
Black Oil	3.50 – 4.00	3.50 – 4.00
CHICAGO (Viscosity at 210°)		
Unfiltered Steam Refined:		
140	9.00	9.00
160	10.00	10.00
200	11.00	11.00
Bright stocks, 160 vis. at 210. No. 8 color:		
0 to 10 p.p.	17.75	17.75
15 to 25 p.p.	16.75	16.75
30 to 40 p.p.	16.25	16.25
E filtered Cyl. Stock	14.50	14.50

To obtain prices delivered in Chicago, add 0.25c per gal.
(a) Nominal.
(b) Only one refiner quoting.

Prices Effective	Jan. 24	Jan. 17
(f) **WESTERN PENNA.**		
600 S.R. filterable	8.50 – 9.00	8.00 – 8.50
650 S.R.	10.50 –11.50	10.50 –11.50
600 fl.	11.00 –12.00	11.00 –12.00
630 fl.	14.00 –16.00	14.00 –16.00
600 Warren E	13.00 –13.50	13.00 –13.50

(f) Quotations only.

Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color:

10 p.t.	18.50 –19.00	18.00 –18.50
15 p.t.	17.50 –18.00	17.00 –17.50
20 p.t.	16.50 –17.00	16.00 –16.50
25 p.t.	15.50 –16.50	15.00 –16.00

Petrolatums

WESTERN PENNA. (Per lb., in barrels, carload lots. In tank cars, 0.5c per lb. less).

Snow White	6.625– 6.75	6.625– 6.75
Lily White	5.625– 5.75	5.625– 5.75
Cream White	4.625– 4.75	4.625– 4.75
Light Amber	2.75 – 2.875	2.75 – 2.875
Amber	2.50 – 2.625	2.50 – 2.625
Red	2.125– 2.375	2.125– 2.375

Wax

Prices Effective	Jan. 24	Jan. 17
WESTERN PENNA. (Per lb., f.o.b. New York basis.)		
122-124 w.c. scale, A.m.p.	2.45 – 2.50	2.45 – 2.50
124-126 w.c. scale, A.m.p.	2.45 – 2.50	2.45 – 2.50
OKLAHOMA (Per lb. in bbls.; in a few instances, per lb. in burlap bags).		
124-126 w.c. scale, A.m.p.	2.75 – 2.90	2.75 – 2.90

CHICAGO (In bags, carload lots. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)

Fully refined:		
122-124	4.65 – 4.75	4.65 – 4.75
125-127	4.90 – 5.00	4.90 – 5.00
127-129	5.05 – 5.15	5.05 – 5.15
130-132	**5.45 – 5.55	**5.45 – 5.55
132-134	**5.70 – 5.80	**5.70 – 5.80
135-137	**6.45 – 6.55	**6.45 – 6.55

**Same prices quoted in bags or slabs loose.

MID-WESTERN TANK CAR MARKET

Prices are those made by Chicago sellers, on Group 3 (Oklahoma) freight basis, although shipments may originate in other South-western or Mid-western refining districts

Gasoline

Prices Effective	Jan. 24	Jan. 17
U. S. Motor: (Octane Test L-3)		
62 oct. and below	3.75 – 4.00	3.75 – 4.25
63-66 oct.	4.00 – 4.25	4.00 – 4.50
67-69 oct.	4.50 – 4.625	4.375– 4.625
70-72 oct.	4.50 – 5.00	4.50 – 5.00
64-66, 375 e.p.	(b)4.25	(b)4.25
68-70, 350-360 e.p.	(b)5.25	(b)5.25

Kerosine

41-43 w.w.	4.125– 4.25	4.25 – 4.375
42-44 w.w.	4.25 – 4.625	4.25 – 4.625

(b) One seller quoting.

Fuel and Gas Oils

Prices Effective	Jan. 24	Jan. 17
Domestic:		
No. 1 p.w.	4.125– 4.375	4.125– 4.375
No. 1 straw	4.00 – 4.125	4.00 – 4.125
No. 2 straw	3.625– 3.875	3.875– 4.00
No. 2 dark	3.625– 3.75	3.625– 3.75
No. 3	3.50 – 3.75	3.50 – 3.625
No. 4	$1.05 –$1.10	$1.05 –$1.10
No. 5	$0.80 –$0.85	$0.80 –$0.85
Range oil	4.125– 4.25	4.125– 4.50
Industrial:		
No. 4	$0.95 –$1.10	$0.95 –$1.10
No. 5	$0.775–$0.85	$0.775–$0.85

Prices Effective	Jan. 24	Jan. 17
Industrial (cont'd)		
No. 6	$0.50 –$0.55	$0.50 –$0.55
U. G. I. gas oil	2.875– 3.25	2.875– 3.25

Naphtha and Solvent

Stoddard solvent	6.875	6.875
Cleaners' naphtha	7.375	7.375
V. M. & P. naphtha	7.375	7.375
Mineral spirits	6.375	6.375
Rubber solvent	7.375	7.375
Lacquer diluent	8.375	8.375

DAILY GASOLINE PRICES

Daily range of gasoline prices as reported in PLATT'S OILGRAM (Week Ended Jan. 21, 1938)

U. S. Motor, (Octane Number determined according to L-3 Method):	Jan. 17	Jan. 18	Jan. 19	Jan. 20	Jan. 21
62 octane and below:					
Oklahoma	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
*North Texas	†4.50 – 4.875	†4.50 – 4.875	†4.50 – 4.875	†4.50 – 4.875	†4.50 – 4.875
West Texas	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75
Mid-Western (Group 3 basis)	3.75 – 4.25	3.75 – 4.25	3.75 – 4.25	3.75 – 4.25	3.75 – 4.25
63-66 octane:					
Oklahoma	4.375– 4.50	4.375– 4.50	4.375– 4.50	4.375– 4.50	4.375– 4.50
*North Texas	†5.00 – 5.375	†5.00 – 5.375	†5.00 – 5.375	†5.00 – 5.375	†5.00 – 5.375
West Texas	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25
Mid-Western (Group 3 basis)	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50
67-69 octane:					
Oklahoma	4.625– 4.875	4.625– 4.875	4.625– 4.875	4.625– 4.875	4.625– 4.875
*North Texas	†5.375– 5.75	†5.375– 5.75	†5.375– 5.75	†5.375– 5.75	†5.375– 5.75
West Texas	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Mid-Western (Group 3 basis)	4.375– 4.625	4.375– 4.625	4.375– 4.625	4.375– 4.625	4.375– 4.625
70-72 octane:					
Oklahoma	4.875– 5.25	4.875– 5.25	4.875– 5.25	4.875– 5.25	4.875– 5.25
*North Texas	†5.625– 6.00	†5.625– 6.00	†5.625– 6.00	†5.625– 6.00	†5.625– 6.00
West Texas	5.875	5.875	5.875	5.875	5.875
Mid-Western (Group 3 basis)	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
Motor Gasoline, 60-64 oct.					
New York harbor	†6.50 – 6.75	†6.50 – 6.75	†6.50 – 6.75	†6.50 – 6.75	†6.50 – 6.75
Philadelphia district	†7.00	†7.00	†7.00	†7.00	†7.00
Baltimore district	†6.75 – 7.25	†6.75 – 7.25	†6.75 – 7.25	†6.75 – 7.25	†6.75 – 7.25
Motor Gasoline, 65 oct. & above:					
New York harbor	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00
Philadelphia district	†7.00 – 7.25	†7.00 – 7.25	†7.00 – 7.25	†7.00 – 7.25	†7.00 – 7.25
Baltimore district	†7.00 – 7.50	†7.00 – 7.50	†7.00 – 7.50	†7.00 – 7.50	†7.00 – 7.50
U. S. Motor, 58-62°:					
Other districts (Western Penna.)	4.625– 4.875	4.625– 4.875	4.625– 4.875	4.625– 4.875	4.625– 4.875
Motor Gasoline, Min. 65 oct.:					
Bradford-Warren (Western Penna.)	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
Other districts (Western Penna.)	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00

*For shipment to Texas and New Mexico destinations; Group 3 prices are quoted on northern shipment.
†Nominal.
‡Only one refiner quoting.

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline do not include taxes; they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices include taxes, where levied, as indicated in footnotes. Discounts to various classes of buyers also are shown in footnotes. These prices in effect Jan. 24, 1938, as posted by principal marketing companies at their headquarters offices, but subject to later correction.

S. O. New Jersey

ESSOLENE

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Atlantic City, N. J.	7.25	8.75	4	8.5
Newark, N. J.	7.25	8.75	4	8.5
Annapolis, Md.	8.35	9.85	5	9.5
Baltimore, Md.	7.75	9.25	5	9
Cumberland, Md.	9.15	11.65	5	10
Washington, D. C.	‖	9.5	3	9.5
Danville, Va.	8.95	11.45	6	12.9
Norfolk, Va.	7.75	10.25	6	11.5
Petersburg, Va.	8.05	10.55	6	11.7
Richmond, Va.	8.05	10.55	6	11.7
Roanoke, Va.	9.25	11.75	6	12.9
Charleston, W. Va.	8.55	11.05	6	12.6
Parkersburg, W. Va.	7.85	9.35	6	11.2
Wheeling, W. Va.	8.85	10.25	6	12.2
Charlotte, N. C.	9.15	11.65	7	12.6
Hickory, N. C.	9.65	12.15	7	13
Mt. Airy, N. C.	9.45	11.95	7	12.8
Raleigh, N. C.	8.75	11.25	7	12.1
Salisbury, N. C.	9.25	11.75	7	12.7
Charleston, S. C.	7.75	10.25	7	11.1
Columbia, S. C.	8.75	11.25	7	12.1
Spartanburg, S. C.	9.45	11.95	7	12.9

Price basis to undivided dealers: Dealer t.w. price less 0.5c per gal.

Price basis to commercial consumers: To contract accounts, purchasing at least one full compartment at a time by hose connection: Effective March 12, 1937, in New Jersey, and March 8 in Maryland, District of Columbia, and in Arlington and Fairfax Counties in Virginia, on yearly purchases: from 2,500 to 100,000 gals., consumer t.w. price at time and place of delivery; 100,000 gals. per year consumer tank car price, plus 0.5c per gal. Generally consumer t.w. price in foregoing states is equivalent of dealer t.w. price, less 0.5c per gal.

Effective May 15, 1937, on Essolene and Esso (by tank wagon) in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax Counties, which see above), commercial consumers taking deliveries of 50 gals. (West Va. 100 gals.) or more at one time will be billed at the posted consumer t.w. price. Deliveries less than 50 gals. (West Va. 100 gals.) will be billed at 4c per gal. over posted consumer t.w. price. Generally, posted consumer t.w. price will be equivalent to the dealer price less 0.5c per gal.

Kerosine Discount: 1c off t.w. price for 25 gals., or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

Socony-Vacuum Oil Co., Inc.

(S. O. New York Division)

SOCONY MOBILGAS

	Consumer Tank Car	"Split" Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Metropolitan N. Y. City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	7.5	9.5	*5	8.75
Borough of Richmond (Staten Is.)	7.5	9.5	*5	8.75
Albany, N. Y.	7.5	9.5	5	9
Binghamton, N. Y.	8.7	10.3	5	9
Buffalo, N. Y.	8.04	9	5	7.5
Jamestown, N. Y.	7.78	10.8	5	8.25
Plattsburg, N. Y.	7.9	10.4	5	9.5
Rochester, N. Y.	8.17	10	5	8.5
Syracuse, N. Y.	8.12	9.5	5	9
Danbury, Conn.	7.8	9.8	4	9
Hartford, Conn.	7.6	9.6	4	8.5
New Haven, Conn.	7.5	9.5	4	8
Bangor, Me.	8.2	9.8	5	9.5
Portland, Me.	7.7	9.5	5	8.75
Boston, Mass.	7.5	9	4	8.5
Concord, N. H.	8.2	10.5	5	9.5
Lancaster, N. H.	9.1	11.5	5	10.25
Manchester, N. H.	8	10	5	9
Providence, R. I.	7.5	9.3	4	8.5
Burlington, Vt.	7.9	9.9	5	9.5
Rutland, Vt.	8.2	10.2	5	9

*Plus 2% city sales tax computed at time of each sale.

Price basis to undivided dealers: 0.5c less than "split" dealer t.w.

Price basis to commercial consumers: Effective about Nov. 15, 1936 in New York and New England for tank wagon delivery: monthly purchases of 25,000 gals. or over, pay consumer tank car price at point of delivery, plus 0.5c gal.; monthly purchases of 5,000 to 25,000 gals., pay undivided dealer tank wagon price at point of delivery; monthly purchases of less than 5,000 gals., pay divided dealer tank wagon price at point of delivery. Private consumers pay undivided dealer tank wagon price at point of delivery, plus 2c gal.

Atlantic Refining

ATLANTIC WHITE FLASH GASOLINE

	Commercial Tank Car	Dealer T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa.	7.25	8.25	12	5	10.5
Pittsburgh	8	10	15	5	11
Allentown	7.75	9.25	**	5	11
Erie	8	9.5	**	5	10
Scranton	8	9.5	**	5	11
Altoona	8	10	**	5	11
Harrisburg	7.5	9	**	5	11
Williamsport	8	10	**	5	11
Dover, Del.		9.5	**	5	11
Wilmington		9	**	5	11
Boston, Mass.		9	**	4	8.5
Springfield, Mass.		9.5	**	4	8.5
Worcester, Mass.		10.3	**	4	9
Fall River, Mass.		8.5	**	4	8.5
Hartford, Conn.		9.6	**	4	8.5
New Haven, Conn.		9.5	**	4	8
Providence, R. I.		9.3	**	4	8.5
Atlantic City, N. J.		8.75	**	4	9
Camden, N. J.		8.75	**	4	9
Trenton, N. J.		8.75	**	4	9
Annapolis, Md.		9.85	**	5	9.5
Baltimore, Md.		9.25	**	5	9
Hagerstown, Md.		10.35	**	5	10
Richmond, Va.		10.55	**	6	11.7
Wilmington, N. C.		10.35	**	7	11.3
Brunswick, Ga.		9	**	7	*13
Jacksonville, Fla.		9	**	8	10

*Georgia has kerosine tax of 1c per gal., not included in above price.

**Atlantic Refining transferred stations to dealers; no prices available.

Price basis to undivided dealers: Dealer t.w. less 0.5c per gal.

Price basis to commercial consumers: in Penna. and Delaware, effective Mar. 11, 1937, on yearly gasoline purchases to contract accounts taking full compartment hose deliveries, using 100,000 gals. or more per year, tank car price plus 0.5c per gal.; consumers taking less than 100,000 gals., undivided dealer price. Consumers under contract and not under contract, taking less than full compartment delivery, and consumers not under contract taking full compartment delivery, get divided dealer price. Consumers taking less than 25 gals., t.w. delivery, get 4c above undivided dealer price.

Discount on kerosine: Effective Oct. 29, 1936, in Pennsylvania and Delaware, 2c per gal. off t.w. price on t.w. deliveries of 25 gals. or more at one time.

S. O. Ohio

SOHIO X-70 GASOLINE

(Regular Grade)

	Consumer T.W.	†Divided Dlr.	Gasoline Taxes	Kerosine T.W.
Ohio State-wide	11	10	5	*13
Counties where prices are below statewide:				
Columbiana, Defiance, Franklin, Knox and Pickaway	10.5	9.5	5	....
Paulding	10	9	5	....

RENOWN GASOLINE

(Third Grade)

Ohio State-wide	10.5	9.5	5	....
Counties where prices are below statewide:				
Columbiana, Defiance, Franklin, Knox and Pickaway	10	9	5	....
Paulding	9.5	8.5	5	....
Counties where prices are above statewide:				
Butler, Clermont, Darke, Greene, Hamilton, Miami, Montgomery, Preble and Warren	11	10	5	....

S. O. Ohio Cont'd

KEROSINE PRICES

(Off Statewide Level)

Kerosine prices are off statewide level in the following counties:

Allen, Auglaize, Champaign, Columbiana, Darke, Geauga, Greene, Hardin, Logan, Mahoning, Mercer, Preble, Putnam, Shelby, Trumbull, Union, Van Wert and Wyandot: *12.5
Paulding: *12
Ashtabula: *11.5
Fayette, Licking, Madison, Pickaway, Portage and Summit: *9.5

†This price also to authorized agents, exclusive of 0.5c rental. Price basis to undivided dealers: 0.5c less than divided dealer t.w.

*Kerosine prices include 1c state tax.

Commercial Tank Wagon O.D.A. to contract accounts: Effective Oct. 20, 1937, thru Ohio (except in 25 counties), on monthly purchases, off posted consumer t.w. price: 0 to 999 gals., 0.5c; 1,000 to 19,999 gals., 1.5c; 20,000 gals. and over, 2.5c. The 25 counties where O.D.A. differs from statewide are: Allen, Auglaize, Champaign, Darke, Defiance, Erie, Fulton, Geauga, Hamilton, Henry, Logan, Lorain, Lucas, Meigs, Mercer, Ottawa, Paulding, Putnam, Sandusky, Scioto, Shelby, Van Wert, Washington, Williams and Wood.

Sales tax: Ohio's 3% sales tax, effective Jan. 27, 1935, is added "where assessable, to regular posted prices," S. O. Ohio says.

On kerosine, prices to resellers and commercial consumers are posted generally at 3c per gal. below consumer t.w. price in any quantity, when such prices are on statewide level.

S. O. Kentucky

CROWN GASOLINE

(Regular Grade)

	Consumer T.W.	Net Dlr.	Gasoline Taxes	Kerosine T.W.
Covington, Ky.	12.5	10.5	6	11
Lexington, Ky.	13.5	10.5	6	11
Louisville, Ky.	13	10	6	10.5
Paducah, Ky.	13.5	10.5	6	10
Jackson, Miss.	13	10	7	*13
Vicksburg, Miss.	13	10	7	*13
Birmingham, Ala.	14	11	*8	12
Mobile, Ala.	13	10	*9	11
Montgomery, Ala.	13	10	*9	*13
Atlanta, Ga.	14	11	7	*14
Augusta, Ga.	14	11	7	*14
Macon, Ga.	14	11	7	*14.5
Savannah, Ga.	12.5	9.5	7	*12
Jacksonville, Fla.	12.5	9.5	8	11
Miami, Fla.	12.5	9.5	8	12.5
Pensacola, Fla.	13.5	10.5	*9	12
Tampa, Fla.	12.5	9.5	8	10.5

KYSO GASOLINE

(Third Grade)

Covington, Ky.	10.5	8	6	....
Lexington, Ky.	11.5	9	6	....
Louisville, Ky.	11	8.5	6	....
Jackson, Miss.	11.5	9	7	....
Vicksburg, Miss.	11	8.5	7	....
Birmingham, Ala.	12	9.5	*8	....
Mobile, Ala.	10.5	8	*9	....
Montgomery, Ala.	10.5	8	*9	....
Atlanta, Ga.	12	9.5	7	....
Augusta, Ga.	12	9.5	7	....
Macon, Ga.	12.5	10	7	....
Savannah, Ga.	10.5	8	7	....
Pensacola, Fla.	12	9.5	*9	....

Discounts to all tank wagon consumers: Effective Jan. 4, 1937, thru territory, on Crown gasoline, 3c per gal. below consumer t.w. price; on Kyso, 2.5c below, regardless of quantity purchased, per month.

Discounts on kerosine: Prices in Kentucky are net, but in other states subject to 2c discount.

**Taxes*: In the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Mississippi kerosine prices include 1c state tax. Montgomery kerosine price includes 1c city tax.

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel:

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel. 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/5c per gal. in lots up to 25 bbls.; 2/25c per gal. in lots of 25 bbls. or more; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal. in lots of more than 50 bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fee only: Iowa, 3/50c; Michigan, 1/5c per gal.

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline do not include taxes; they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices include taxes, where levied, as indicated in footnotes. Discounts to various classes of buyers also are shown in footnotes. These prices in effect Jan. 24, 1938, as posted by principal marketing companies at their headquarters offices, but subject to later correction.

S. O. Indiana

Red Crown Cons. T.W. — Dealer Prices: Red Crown T.W. / Stanolind T.W. / Gasoline Taxes / Kerosine T.W.

	Red Crown Cons. T.W.	Red Crown T.W.	Stanolind T.W.	Gasoline Taxes	Kerosine T.W.
Chicago, Ill.	11.3	9.3	8.1	4	10.2
Decatur, Ill.	11.3	9.1	7.7	4	10.2
Joliet, Ill.	11.3	9.8	8.1	4	10.2
Peoria, Ill.	11.3	9.8	9.3	4	10.2
Quincy, Ill.	11.1	9.6	8.5	4	10
Indianapolis, Ind.	11.9	10.4	9.7	5	*14.8
Evansville, Ind.	11.8	10.3	8.1	5	*14.7
South Bend, Ind.	12.2	10.7	9.2	5	*15.1
Detroit, Mich.	11.1	9.6	9.1	4	9.8
Grand Rapids, Mich	12.3	10.8	10.3	4	11
Saginaw, Mich.	12.1	10.6	10.1	4	9.1
Green Bay, Wis.	12	10.5	9.8	5	10.9
Milwaukee, Wis.	11.5	10	9.2	5	10.4
La Crosse, Wis.	11.7	10.2	9.7	5	10.6
Minneapolis-St. Paul	11.7	10.2	9.7	5	10.6
Duluth, Minn.	12	10.5	10	5	10.9
Mankato, Minn.	11.7	10.2	9.5	5	10.6
Des Moines, Ia.	11.1	9.6	7	4	*11
Sioux City, Ia.	11.3	9.8	9.3	4	*13.2
Davenport, Ia.	11.3	9.8	9.3	4	*13.2
Mason City, Ia.	11.4	9.9	9.4	4	*13.3
St. Louis, Mo.	10.9	9.4	7.2	*4	9.8
Kansas City, Mo.	10.6	9.1	8.6	*4	9.5
St. Joseph, Mo.	10.6	7.4	6	*4	9.5
Fargo, N. D.	12.7	11.2	10.7	4	11.6
Minot, N. D.	13.9	12.4	11.9	4	12.8
Huron, S. D.	12.1	10.6	10.1	*5	11
Wichita, Kans.	10.1	8.4	6.5	4	8.5

*Taxes: in the tax column is included these city and state gasoline taxes at following points: Kansas City, St. Joseph and St. Louis, 1c city tax; South Dakota, 0.1c sales tax. State Kerosine taxes: Indiana, 4c; Iowa, 3c, all included in above prices.

Discount to commercial consumers: Effective Jan. 1, 1935, thru territory, except Michigan effective Feb. 1, on purchases per month, discount off t.w. prices; all gasolines, 25 to 1,000 gals., at t.w. price; 1,000 gals., or more, 1.5c off t.w. on Ethyl and Red Crown, and 1c on Stanolind (latter effective June 9, 1937). Minimum delivery is 25 gals.

S. O. Nebraska

STANDARD RED CROWN GASOLINE

	T.W.	Dealer	Gasoline Taxes	Kerosine T.W.
Omaha, Neb.	11.7	10.2	6	10.5
McCook	12.4	7.5	6	11.2
Norfolk	12.1	10.6	6	10.9
North Platte	12.5	11	6	11.3
Scottsbluff	13.2	10	6	12

Discounts to commercial consumers: for tank wagon deliveries covered only by Standard Commercial Consumer Contract, effective January 1, 1935.

S. O. Louisiana

ESSOLENE

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Little Rock, Ark.	7.75	10.25	7.5	11.5
Alexandria, La.	7.75	10.25	8	*10.5
Baton Rouge, La.	7.25	9.75	8	*12
New Orleans, La.	7.25	9.75	*10	*12
Lake Charles, La.	8.25	10.75	8	*12.5
Shreveport, La.	6.75	9.25	8	*9.5
Lafayette, La.	8.25	10.75	8	*13
Bristol, Tenn.	10.25	11.5	8	14.5
Chattanooga, Tenn.	9.75	12.25	8	13.5
Knoxville, Tenn.	10.25	12.75	8	14
Memphis, Tenn.	8.25	10.25	8	12
Nashville, Tenn.	9.25	11.75	8	11.5

*New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana kerosine prices include 1c state tax; in addition New Orleans has 1c parish tax.

Price basis to dealers: Undivided dealers get dealer price, less 0.5c.

Price basis to commercial consumers: Effective May 15, 1937, thru territory; commercial consumers taking 50 gals. or more at one time will be billed at posted consumer t.w. price; those taking less than 50 gals. at one time will be billed at 4c per gal. over posted consumer t.w. price. Generally, the posted consumer t.w. price will be equivalent to the dealer price less 0.5c per gal.

Humble Oil & Refining Co.

HUMBLE MOTOR FUEL

	*T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
Dallas, Tex.	9	13	5	8
Ft. Worth, Tex.	9	13	5	8
Houston, Tex.	9.5	13.5	5	8
San Antonio, Tex.	8.5	12.5	5	8

U. S. Motor Gasoline (*Third Grade*)

Dallas, Tex.	7	10	5	
Ft. Worth, Tex.	7.5	10	5	
Houston, Tex.	8.5	11.5	5	
San Antonio, Tex.	7.5	10.5	5	

*Price is t.w. price to all classes of dealers and consumers.

Price basis to "open" dealers: discount off posted retail price: when posted retail price, including all taxes on Esso motor fuel is: 19.1c per gal. and above, discount is 3.5c; 19c to 18.1c, 3c, and 18c and below, 2.5c. Humble motor fuel, 17.1c and above, 3.5c; 17 to 16.1c, 3c; and 16c and below, 2.5c; U. S. motor fuel, 15.1c and above, 2.5c; 15 to 14.1c, 2c; and 14c and below, 1.5c.

Continental Oil

—Dealer Prices—

	Conoco Bronze	Demand	Gasoline Taxes	Kerosine T.W.
Denver, Colo.	10	9	5	11.5
Grand Junc., Colo.	14	13	5	15
Pueblo, Colo.	9	8	5	10.5
Casper, Wyo.	12	11	5	11.5
Cheyenne, Wyo.	11	7	5	13
Billings, Mont.	13.5	12	6	15.5
Butte, Mont.	13.5	10.5	6	15.5
Great Falls, Mont.	13.5	12.5	6	15.5
Helena, Mont.	13.5	12.5	6	15.5
Salt Lake City, Utah	14.5	11.5	5	16
Boise, Ida.	15.5	13.5	6	18
Twin Falls, Ida.	15	14	6	18
Albuquerque, N. M.	11	10	†6.5	12
Roswell, N. M.	11	8.5	†6.5	10.5
Santa Fe, N. M.	12	9.5	*7	12
Muskogee, Okla.	9.5	8	5	7
Oklahoma City, Okla.	9	6	5	8
Tulsa, Okla.	9	6	5	6
Ft. Smith, Ark.	9.75	8.5	5	8
Little Rock, Ark.	9.75	7.625	7.5	9.5
Texarkana, Ark.	9	6	5	8.5

†Includes city tax of 0.5c.
*Includes 1c city tax.

S. O. California

STANDARD GASOLINE

	T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
San Francisco, Cal.	13.5	14.5	4	11.5
Los Angeles, Cal.	13	14	4	10
Fresno, Cal.	14.5	15.5	4	12.5
Phoenix, Ariz.	15	16	6	†17
Reno, Nev.	15	16	5	13
Portland, Ore.	14	15	6	13.5
Seattle, Wash.	14	15	6	13.5
Spokane, Wash.	16.5	17.5	6	16
Tacoma, Wash.	14	15	6	13.5

FLIGHT GASOLINE (*Third Grade*)

San Francisco, Cal.	12	13	4	....
Los Angeles, Cal.	11.5	12.5	4	....
Fresno, Cal.	13	14	4	....
Reno, Nev.	13.5	14.5	5	....
Phoenix, Ariz.	13.5	14.5	6	....
Portland, Ore.	12.5	13.5	6	....
Seattle, Wash.	12.5	13.5	6	....
Spokane, Wash.	15	16	6	....
Tacoma, Wash.	12.5	13.5	6	....

†Includes 5c state tax.

Discount to dealers: on gasoline, off t.w. price on Standard Ethyl and Standard Gasoline, to 100% dealers, 3c; to split dealers, 2c; on Flight gasoline, both 100% and split dealers, 2c.

On Stanavo Aviation Gasoline, to all classes of dealers, 3c off t.w.

To commercial consumers: off tank wagon price: on single deliveries of 40 gallons and over. Stanavo Aviation, Standard Ethyl and Standard Gasolines, 3c. Flight Gasoline, 2c per gallon. Tank wagon delivery, less than 40 gals., 1c per gal. above posted t.w. price.

On kerosine 3c off t.w. price: plant deliveries to jobbers, 2.5c below t.w.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-STAR IMPERIAL GASOLINE

	T.W.	Gasoline Taxes	Kerosine T.W.
Hamilton, Ont.	16	6	17
Toronto, Ont.	16	6	17
Brandon, Man.	21.1	7	22.3
Winnipeg, Man.	20.5	7	20.7
Regina, Sask.	20	7	22
Saskatoon, Sask.	22.8	7	24.8
Edmonton, Alta.	19.5	7	21.5
Calgary, Alta.	17	7	19
Vancouver, B. C.	16	7	23
Montreal, Que.	15	6	17.5
St. John, N. B.	16	8	18.5
Halifax, N. S.	16	8	18.5

Discounts to undivided dealers, 1c off t.w. price, except Maritime Provinces where undivided dealers pay t.w. price. Divided dealers pay t.w. price, thru territory.

Aviation Gasoline

Following are tank car and/or tank wagon prices, as indicated, of aviation gasoline in principal marketing territories (Stanavo Aviation Gasoline in all territories except where otherwise noted).

S. O. NEW JERSEY

	*Ethyl T.C.	Tank Car	T.W.
Bayonne, N. J.	19.5	9.5	12.5
Baltimore, Md.	....	10	13
Washington, D. C.	....	....	13.5
Richmond, Va.	....	....	14.7
Greensboro, N. C.	....	....	15.7
Raleigh, N. C.	....	....	17.6
Charleston, W. Va.	....	....	12.2

*This is Stanavo Ethyl Aviation Gasoline, 100 octane number, tank car price.

COLONIAL BEACON OIL CO.

	T.W.
Brooklyn, N. Y.	12.8
Buffalo, N. Y.	14.5
Boston, Mass.	15

S. O. PENNSYLVANIA

Philadelphia, Pa.	13.6
Pittsburgh, Pa.	14.4

S. O. LOUISIANA

New Orleans, La.	13.3
Shreveport, La.	13.6

Prices in above four territories are on a 74 octane grade aviation gasoline except where otherwise noted. An 80 octane product generally brings 0.5c premium and an 87 octane product, 1.5c premium over the 74 octane grade.

Note: S.s. prices in above four territories are generally 6c over t.w. prices. Above t.w. prices are net, with no discounts allowed for quantity purchases. T.w. prices are generally tank car price, plus freight, plus 2.5c per gal.

S. O. OHIO

Thru Ohio

Stanavo Ethyl Aviation

	Consumer T.W.	Gasoline Taxes
73 octane	15.5	5
80 octane	16.5	5
87 octane	17.5	5

Discounts: For delivery on contract to hangar operators and resellers: 2c below consumer posted t.w. price, shown above.

S. O. INDIANA

Stanavo Ethyl Aviation Gasoline, 73 Octane Number

Chicago, Ill.	14.6 4
Detroit, Mich.	16.1 4
Milwaukee, Wis.	14.8 5
Minneapolis, Minn.	15 5
St. Louis, Mo.	14.2 3
Kansas City, Mo.	13.9 *4
Fargo, N. D.	16 4
Huron, S. D.	15.4 5

*Includes 1c city tax.

HUMBLE OIL & REFINING CO.

	Tank Car
Baytown, Tex.	8.5

CONTINENTAL OIL CO.

Conoco Special Gasoline

	Dealer	Gasoline Taxes
Denver, Colo.	13	5
Cheyenne, Wyo.	15	5
Helena, Mont.	16.5	6
Salt Lake City, Utah	17.5	5
Albuquerque, N. M.	14	*6.5

*Includes city tax of 0.5c.

S. O. CALIFORNIA

	T.W.	
Phoenix, Ariz.	17	6
Los Angeles, Cal.	15	4
San Francisco, Cal.	15.5	4
Reno, Nev.	17	5
Portland, Ore.	16	6
Seattle, Wash.	16	6
Spokane, Wash.	18.5	6

Note: For discounts, etc., see note under Standard and Flight gasoline above.

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline do not include taxes; they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices include taxes, where levied, as indicated in footnotes. Discounts to various classes of buyers also are shown in footnotes. These prices in effect Jan. 24, 1938, as posted by principal marketing companies at their headquarters offices, but subject to later correction.

Naphtha (In Tank Wagon)

S. O. NEW JERSEY

Posted Tank Wagon Prices

	Mineral Spirits	V.M.&P.
Newark, N. J.	11.5	15.5
Baltimore, Md.	15.5	....
Washington, D. C.	15	....

Discounts: Buyers taking following quantities, at one time, get these discounts: Newark, 2c per gal. on 200 gals. or more; less than 200 gals., 0.5c higher price. Baltimore 2c off on 25 to 100 gals. and 3c on over 100 gals. Washington, 2c off to contract buyers.

SOCONY-VACUUM OIL CO.

Buffalo, N. Y.	13	14
New York City	9.5	11.5
Rochester, N. Y.	13	15
Syracuse, N. Y.	14	15
Boston, Mass.	13.5	14
Bridgeport, Conn.	12.5	14
Hartford, Conn.	12	13.5
Providence, R. I.	13.5	14.5

ATLANTIC REFINING CO.

Philadelphia, Pa.	11.5	12.5
Lancaster, Pa.	13	14
Pittsburgh, Pa.	12.5	14.5

Note: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V.M.&P. Naphtha apply also to Light Cleaners Naphtha.

S. O. OHIO

	S.R. Solvent	V.M.&P. Naphtha
Thru Ohio	13.25	13.75

Note: V.M.&P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices. Discounts to contract consumers, off t.w. price: 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals., 1.5c.

S. O. INDIANA

(Prices include state and federal taxes)

	Oleum Spirits	V.M.&P. Naphtha	Stanisol
Chicago, Ill.	15.9	16.2	15.6
Detroit, Mich.	19.3	18.3	19.4
Kansas City, Mo.	14.4	15.4	14.4
St. Louis, Mo.	14.7	15.7	14.6
Milwaukee, Wis.	19.3	20.3	19.3
Minneapolis, Minn.	19.5	20.5	18.1

Note: Prices for V. M. & P. apply also to Light Cleaners Naphtha. All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

Naphtha (In Tank Cars)

In Tank Cars (F. o. b. refinery or seaboard terminal except Ohio, delivered price.)

	V.M.&P. Naphtha	Solvent
Baltimore	10.5	9.5
New York Harbor	10	9
Philadelphia district	10.5	9
Boston	10.5	9.5
Providence	10.5	9.5
Ohio points, delivered	9.375	*8.50

*This is on rubber solvent.

Note: In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M.&P.; on Varnolene and Sohio Solvent, prices are 0.5c less than on V.M.&P.

Latest Changes

From Jan. 18 to Jan. 24 inclusive. Dates and amounts of changes shown. See table for full current prices.

Note: Please note heads at top of tank wagon pages. Beginning with this issue, all gasoline prices published in these tables, are excluding federal, state, city and county taxes.

S. O. Ohio—X-70 and Renown:
Franklin and Knox counties, consumer t. w. up 0.5c, Jan. 20.

S. O. Indiana—Red Crown:
Decatur, dealer price cut 0.7c, Jan. 20.

Stanolind:
Decatur, dealer price cut 1.4c, Jan. 20.

Humble Oil & Refining—U. S. Motor & Humble Motor Fuel:
San Antonio, cut 1c, Jan. 18.

Continental Oil—Conoco Bronze:
Pueblo, dealer price cut 2c, Jan. 19.

Demand:
Pueblo, dealer price cut 1c, Jan. 19.

Corrections

Notation of amount of change and dates not previously shown in table. Table in this issue is corrected to show these changes.

S. O. New Jersey—Essolene:
Parkersburg, dealer price cut 1c, Jan. 13.

Kerosine:
Atlantic City and Newark, cut 0.5c, Jan. 12.

Atlantic Refining—Atlantic White Flash:
Springfield, dealer t. w. up 0.2c to 13.5c, Dec. 24. Jan. 5 issue page 48 carried this under corrections erroneously as effective at Boston instead of Springfield dealer t. w. up 0.2c.
Pittsburgh, dealer t. w. should have been 15c instead of 13c as shown in table of Jan. 19 issue, page 46.

S. O. Indiana—Kerosine:
In the general kerosine advance, Jan. 12, thru territory, as reported in the Jan. 12 issue, page 31; these points were affected. South Bend, up 0.9c; Mankato, up 1.1c; Kansas City, up 1c, and St. Joseph, up 0.5c.

S. O. Nebraska—Red Crown:
McCook, dealer price cut 1.5c, Jan. 15.

Imperial Oil Ltd.—Three Star Imperial:
Brandon, Manitoba, cut 1.7c, Jan. 13.

Station's Cleanliness Emphasized By Using New Money For Change

TO SAY that there is nothing new under the sun, is to disregard one of the latest bits of sales promotion of the Motor Lighthouse, a modern service station at Warren, Pa. It is a unique way of emphasizing the cleanliness of the station to its customers.

According to the Penn Grade Bulletin, official organ of the Pennsylvania Grade Crude Oil Assn., when a customer at this station is handed $1 or more in change after his purchase, he receives currency in the form of new bills, folded to one-quarter length and wrapped with a bright sticker on which is printed a brief message.

One side of the wrapper reads:

$1 THANK YOU $1
Here's CLEAN change
from a
CLEAN STATION

The other side of the wrapper extends a cordial invitation from the station to come back again and carries this message:

We hope that soon
again
you'll enjoy stopping
at the
MOTOR LIGHTHOUSE

It is reported that the novelty has a lasting effect on the motorist's memory, and that the new money is very effective in promoting the idea of the station's cleanliness.

Refinery Sales Lead 13 Industries

CLEVELAND, Jan. 24.—Petroleum and machinery groups led 13 manufacturing industries in sales gains in November over the same month a year ago with increases of about 11 per cent, figures of the Department of Commerce indicate. Four of these industries experienced sales declines over 20 per cent while four more declines were around 15 per cent. Percentages are computed from the reports of 560 manufacturers, petroleum being represented by ten refining companies whose sales totaled about $34,000,000 for November.

A sales decline of five per cent for the petroleum industry from October to November was also a better record than any of the other 12 industries showed. Other industries represented are food, paper, chemicals, stone, clay and glass, leather, printing, forest products, textiles, motor vehicle parts, iron and steel, and non-ferrous metals. These are named in order of increasing declines in sales from a year ago.

Percentage of collections on accounts receivable among the refiners was close to the average for the industries represented and showed slight change. The figure for November was 76.2 per cent of collections during the month to accounts receivable at the beginning of the month.

Crude Oil Sale

TORONTO, Jan. 24.—Mene Grande Oil Co., Venezuela subsidiary of the Gulf Oil Co., has sold half of its crude production to the International Petroleum Co. This will add 35,000 barrels daily to the supply International has for sale. International's own production of crude averaged 95,000 barrels daily for the 11 months ended Nov. 30.

SEABOARD MARKETS, EXPORT AND COASTWISE

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). In cargo markets, spot shipment is 90 days. Prices in cents per gallon, except heavy fuel oil in dollars per barrel, in tank car lots, f.o.b. refineries or seaboard terminals in districts designated, unless otherwise noted. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M.D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Eastern Domestic

(Inter-refinery and export prices not included.)

MOTOR GASOLINE

Prices Effective	Jan. 24	
District:	(a)60-64 Oct.	(a)65 Oct. & Above
N. Y. harbor	6.50 – 6.75	6.75 – 7.00
(b)N.Y.harbor	6.25 – 6.50	6.50 – 7.00
Philadelphia	7.00	7.00 – 7.25
Baltimore	6.75 – 7.25	7.00 – 7.50
Norfolk	7.00 – 7.25	7.25 – 7.50
Wilmington, N. C.	7.00 – 7.25	7.25 – 7.50
Charleston, S. C.	7.00 – 7.25	7.25 – 7.50
Savannah	7.00 – 7.25	7.25 – 7.50
Jacksonville	7.00 – 7.25	7.25 – 7.50
Portland	7.00	7.25
Boston	6.75	7.00
Providence	6.75	7.00

(a)Prices are nominal. (b)Barge lots.

WATER WHITE KEROSINE

District:			
N. Y. harbor	6.00	Charleston	6.00
(b)N. Y. harbor	5.875	Savannah	5.75
Philadelphia	6.25	Jacksonville	5.75
Baltimore	6.00	Portland	6.75
Norfolk	6.00	Boston....(e)6.25–6.40	
Wilmington, N.C.	6.00	Providence	6.40

(b)Barge lots.

(c)FUEL OILS

	N. Y. harb.	N. Y. harb. barges
No. 1	6.00	5.875
Nos. 2-3	5.00	4.875
No. 4	5.00	4.875– 5.00
No. 5	$1.45 – 1.55	.....
No. 6	$1.25	.....

	Phila. dist.	Balt. dist.
No. 1	6.25	6.00
Nos. 2-3	5.25	5.00
No. 4	4.75 – 5.25	5.00
No. 5	$1.45–$1.475	$1.45–$1.55
No. 6	$1.25	$1.25

	Bost. dist.	Prov. dist.
No. 1	(e)6.25 – 6.40	6.40
Nos. 2-3	(e)5.25 – 5.40	(f)5.40
No. 4	(e)5.25 – 5.40	(f)5.40
No. 5	$1.45–$1.55	.....
No. 6	$1.25	.....

(c)Fuel oils meet specifications of U. S. Commercial Standards CS12-35.

(f)Some suppliers quote 5.40c delivered Providence district.

(e)Top price of range represents delivered prices within local switching district.

District:	(b)Bunker C Fuel	(b)Diesel Oil
N. Y. harbor	(e)$1.25	*(d)$2.10
Philadelphia	(e)$1.25	(e)$2.10–$2.20
Baltimore	(e)$1.25	*(d)$2.10
Norfolk	(c)$1.25	*$2.10
Charleston	$1.20	*$2.10
Savannah	(c)$1.20	*$2.10
Jacksonville	(c)$1.20	*$2.10
Tampa	(c)$1.20	*$2.10
Portland	$1.35	$2.35
Boston	(e)$1.25	(d)$2.20
Providence	$1.25	$2.25

(b)In ship's bunkers.
(c)For barging add 5c per bbl.
(d)For barging add 6.5c to 7.5c per bbl.
(e)For barging add 5c to 6c per bbl.

*Correction: These prices in effect on and since Jan. 17.

	Gas Oil 28-34 Gravity	Diesel Oil Shore Plants
N. Y. harbor	5.25	5.25
Philadelphia dist.	5.00	....
Baltimore dist.	5.25	....
Norfolk dist.	5.25	....
Savannah dist.	....	5.25
Jacksonville dist.	....	5.25

Pacific Export

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gal., except where otherwise noted.)

Prices Effective	Jan. 24	Jan. 17
U. S. Motor, under 65 oct.	5.75 – 6.00	5.75 – 6.00
400 e.p. blend, under 65 oct.	6.00 – 6.125	6.00 – 6.125
400 e.p. blend 65 oct. & above	6.125– 6.375	6.125– 6.375
(b)38-40 w.w.kerosine	4.75 – 5.00	5.00 – 5.25
41-43 w.w. kerosine	5.00 – 5.50	5.25 – 5.50
44 w.w. kerosine	5.50 – 5.75	5.50 – 5.75

(b)150 fire point.

Prices Effective	Jan. 24	Jan. 17
In Cargo lots, per bbl.		
Diesel fuel, 24° & above	$1.45 –$1.50	$1.45 –$1.50
Diesel fuel, under 24°	$1.40 –$1.45	$1.40 –$1.45
(b)30-34 diesel(gas oil)	$1.55 –$1.65	$1.55 –$1.65
(c)Grade C fuel oil	$0.85 –$0.90	$0.85 –$0.90

Note: For San Francisco cargo prices, add 5c per bbl. to above cargo prices.

In Ships' Bunkers, or deep tank lots, per bbl.:		
(b)Diesel fuel oil	$1.625–$1.65	$1.625–$1.65
(c)Grade C fuel oil	$0.975–$1.00	$0.975–$1.00

(b)Pacific specification 200. (c)Pacific specification 400.

Cased Goods: (Per case)		
U. S. Motor	$1.45 –$1.575	$1.45 –$1.575
400 e.p. blend, below 65 octane	$1.55 –$1.65	$1.55 –$1.65
400 e.p. blend, 65 oct. & above	$1.65 –$1.75	$1.65 –$1.75
(b)40-43 w.w. kerosine	$1.35 –$1.45	$1.35 –$1.45
Kerosine, p.w.	$1.30 –$1.40	$1.30 –$1.40

(b)150 fire point.

New York Export

(Prices in cents per gal. in bbls. F.a.s. New York)

CYLINDER OILS (Pennsylvania Products)

Bright stock:		
Light, 25 p.t.	22.50 –23.00	22.50 –23.00
Dark, 25 p.t.	22.00 –22.50	22.00 –22.50
Neutral oil:		
200 3 color, 25 p.t.	24.50 –25.00	24.50 –25.00
150 3 color, 25 p.t.	22.50 –23.00	22.50 –23.00
600 Warren E filtered.	21.00 –21.50	20.50 –21.00
600 s.r., unfiltered	15.50 –16.00	15.00 –15.50
650 s.r., unfiltered	18.50 –19.00	18.00 –18.50
600 fl., s.r.	19.00 –19.50	18.50 –19.00
630 fl., s.r.	23.00 –23.50	22.50 –23.00

Wax, Domestic *and* Export

(Prices in cents per lb. Tests made by A. S. T. M. methods. Melting points shown below, however, are A. M. P., 3° higher than A. S. T. M. (E.M.P.) melting points. Export prices are f.a.s. carload lots. Domestic prices are f.o.b. refineries in New York and New Orleans districts, in bags, carload lots, with 0.2c discount allowed for shipment in bulk. Scale, solid and fully refined, slabs in bags.)

Prices Effective	Jan. 24	
	New York	
	Domestic	Export
124-6 Y.C. scale	2.30 – 2.45	2.30 – 2.45
122-4 W.C. scale	2.30 – 2.45	2.30 – 2.45
124-6 W.C. scale	2.30 – 2.45	2.30 – 2.45
123-5 Fully rfd.	4.45	3.875
125-7 Fully rfd.	4.55	4.00
128-30 Fully rfd.	4.80	4.25
130-2 Fully rfd.	4.95	4.50
133-5 Fully rfd.	(b)5.35	5.00
135-7 Fully rfd.	(b)5.60	5.25
	New Orleans	
	Domestic	Export
124-6 Y.C. scale	2.30 – 2.45	2.30 – 2.45
122-4 W.C. scale	2.30 – 2.45	2.30 – 2.45
124-6 W.C. scale	2.30 – 2.45	2.30 – 2.45
123-5 Fully rfd.	4.45	3.875
125-7 Fully rfd.	4.55	4.00
128-30 Fully rfd.	4.80	4.25
130-2 Fully rfd.	4.95	4.50
133-5 Fully rfd.	(b)5.35	5.00

(b)Shipment either in bags or in bulk.

Gulf Coast

(Prices are f.o.b. ship at Gulf oil terminals representing opinions of traders, except prices specified to the contrary. Prices cover bulk shipments of 20,000 bbls. or more, unless otherwise noted.)

Prices Effective	Jan. 24	Jan. 17
For Domestic shipment:		
MOTOR GASOLINE		
59 oct. & below	(a)5.125–5.25	(a)5.125–5.25
60-64 oct. number	(a)5.25 –5.375	(a)5.25 – 5.375
65 oct. & above	5.75 –5.875	5.75 – 5.875
FUEL OILS		
No. 1	5.125	5.125
No. 2	4.50	4.50
No. 4	4.25 – 4.375	4.25 – 4.375
KEROSINE		
41-43 w w	5.125	5.125
For Export Shipment:		
GASOLINE		
U. S. Motor	5.00 – 5.125	5.00 – 5.125
60-62, 400 e.p.	5.00 – 5.125	5.00 – 5.125
61-63, 390 e.p.	5.125– 5.25	5.125– 5.25
64-66, 375 e.p.	5.125– 5.25	5.125– 5.25
KEROSINE		
44 w.w.	(a)5.375	(a)5.375
41-43 w.w.	5.125	5.125
41-43 p.w.	5.00	5.00

(a)Nominal.

Prices Effective	Jan. 24	Jan. 17
GAS AND BUNKER OILS		
For Domestic and/or Export Shipment		
(b)26-30 translucent gas oil	4.25 – 4.375	4.25 – 4.375
(b)30 plus translucent gas oil	4.50 – 4.625	4.50 – 4.625
(b)30 plus transparent gas oil	4.50 – 4.625	4.50 – 4.625
Diesel Oil Ship's bkrs.	(c)$1.90	(c)$1.90
Grade C bunker oil for ship's bunkers	(c)$0.95	(c)$0.95
Grade C bunker oil, in cargoes	$0.80 –$0.85	$0.80 –$0.85

(b)Less than ½ of 1% sulphur. (c)Barging 5c bbl. additional at some Gulf ports.

MEXICAN CRUDE AND BUNKER OILS

(F.o.b. Steamer, Tampico)

Heavy Panuco crude, taxes to be paid	(a)$0.96	(a)$0.96
Grade C bunker oil, ship's bunkers, taxes paid	$0.95	$0.95

(a)Nominal.

MID-CONTINENT LUBRICATING OILS

(Prices in cents per gal. for export shipment, f.o.b. Gulf in bulk, f.a.s. Gulf in bbls.)

	Jan. 24	
190-200 vis. D 210 brt.	(b)Barrels	Bulk
stock	24.00 –25.00	18.00 –20.50
150-160 vis. D 210 brt. stock:		
0-10 p.p.	20.00 –20.50	13.50 –14.50
10-25 p.p.	20.00	13.00 –14.00
150-160 vis. E 210 brt. stock	19.50 –20.00	13.50
120 vis. D 210 brt. stock:	19.50 –20.00	13.50

(b)Second hand barrels.

	Jan. 24	Jan. 17
180 vis. No. 3 color neutral:		
0-10 p.p.	11.75 –12.00	11.75 –12.00
15-30 p.p.	11.25 –11.50	11.25 –11.50
200 vis. No. 3 color neutral:		
0-10 p.p.	12.25 –12.50	12.25 –12.50
15-30 p.p.	11.75 –12.00	11.75 –12.00
600 s.r. olive green	9.00 –11.25	9.00 –11.25
600 s.r. dark green	7.00 – 9.25	7.00 – 9.25

SOUTH TEXAS LUBRICATING OILS

(Vis. at 100° cold test 0, bulk export shipment, f.o.b. Gulf oil terminals.)

Unfiltered Pale Oils: Vis. Color		
100 No. 3	5.50	5.50
200 No. 3	7.25	7.25
300 No. 3	7.75	7.75
500 No. 3½	8.75	8.75
750 No. 4	9.25	9.25
1200 No. 4	9.75	9.75
2000 No. 4	10.00 –10.25	10.00 –10.25
Red Oils: Vis. Color		
100 No. 5-6	5.50	5.50
200 No. 5-6	7.25	7.25
300 No. 5-6	7.75	7.75
500 No. 5-6	8.75	8.75
750 No. 5-6	9.25	9.25
1200 No. 5-6	9.75	9.75
2000 No. 5-6	10.00 –10.25	10.00 –10.25

Note: Red oil prices shown above cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 lbs., British sterling; to U. S. ports in cents per bbl.)

Rates Effective Jan. 24

	Crude &/or Refined Oil &/or Fuel		Refined Oil &/or Spirits	
	Last Paid	Owners Ask	Last Paid	Owners Ask
Gulf-U.K./Cont.(b)	25/6	27/-28/	31/6	33/-35/
Aruba-U.K./Cont.(b)	22/6	24/-26/	26/6	28/-30/
Gulf-N. Atlantic(c) (not E. of N.Y.):				
Hvy. Crude & Fuel, (10 to 19.9 gravity)	41c	42c	....	....
Light Crude, (30 Grav. or Lighter)	37c	38c-39c	....	....
Gasoline	....	....	40c	(a)40c
Kerosine	....	....	40c	(a)41c
Light Fuel	....	....	41c	(a)42c

(a)Nominal.
(b)Continental ports in range between Bordeaux and Hamburg, both inclusive.
(c)Venezuela loading same rate: Tampico 2c to 3c per bbl. additional.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency

(Effective Dec. 1, 1937, except Corning Sept. 2, 1937)

Penna. Grade Oil in Southwest Penna. Pipe Lines.....$1.88
Penna. Grade Oil in Eureka Pipe Lines (West Virginia).....$1.82
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.).....$1.70
Corning Oil in Buckeye Pipe Lines (Ohio)...$1.27

Posted by Other Companies

Tide Water Associated Oil Co.
Bradford-Allegany district (Penna. and N. Y.) (Effective Dec. 1, 1937).....$2.20
*The Pennzoil Co.: (Effective Dec. 1, 1937)
Penna. Grade Oil in National Transit Lines*$2.15
Ashland Oil & Transportation Co.:
Somerset Oil in Ashland Lines (Ky.):
(Effective Jan. 28, 1937)
Big Sandy River.....$1.42
Kentucky River.....$1.50

*The Pennzoil Co. posts $2.15 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other lower districts range down to $2.10 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co.

Midland, Midland County (Jan. 5, 1938)....$1.12

Posted by Simrall Pipe Line Corp.

(Effective Dec. 29, 1937)

West Branch, Arenac, and equal grades.....$0.80

(Effective Jan. 8, 1938)

Beaverton, Crystal, Greendale, Porter and equal grades.....$1.12
Buckeye, Bentley, Billings, Tobacco and equal grades.....$1.095

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

(Effective Jan. 28, 1937)

Illinois, Princeton.....$1.35
Owensboro (Western Ky.).....$1.40

(Effective Nov. 20, 1937)

Lima, O.....$1.00

Posted by Stoll Oil Refining Co.

(Effective Feb. 1, 1937)

Stoll Pipe Line Oil (Ky.).....$1.40

CANADIAN FIELDS

Posted by Imperial Oil Limited

Western Ontario

(Effective Sept. 9, 1933)

Petrolia.....$2.10
Oil Springs.....$2.17

Alberta—Turner Valley

(Prices f.o.b. field tankage)

(Effective Jan. 5, 1938)

Crude Oil

40-40.9°	$1.14	53-53.9	$1.40
41-41.9	1.16	54-54.9	1.42
42-42.9	1.18	55-55.9	1.44
43-43.9	1.20	56-56.9	1.46
44-44.9	1.22	57-57.9	1.48
45-45.9	1.24	58-58.9	1.50
46-46.9	1.26	59-59.9	1.52
47-47.9	1.28	60-60.9	1.54
48-48.9	1.30	61-61.9	1.56
49-49.9	1.32	62-62.9	1.58
50-50.9	1.34	63-63.9	1.60
51-51.9	1.36	64-64.9	1.62
52-52.9	1.38		

Crude Naphtha, 65 grav. & above.....$2.14

Absorption Gasoline

90% Rec., 20 lb. Reid v.p.....$1.94
90% Rec., 17 lb. Reid v.p.....$2.08

MID-CONTINENT

Posted by Stanolind Crude Oil Purchasing Co., Jan. 28, 1937

	(In Oklahoma-*Kansas)	(In North-North Central Texas)
Below 29	$1.06	$0.96
29-29.9	1.08	0.98
30-30.9	1.10	1.00
31-31.9	1.12	1.02
32-32.9	1.14	1.04
33-33.9	1.16	1.06
34-34.9	1.18	1.08
35-35.9	1.20	1.10
36-36.9	1.22	1.12
37-37.9	1.24	1.14
38-38.9	1.26	1.16
39-39.9	1.28	1.18
40 & above	1.30	1.20

Above Stanolind prices met as follows:

Jan. 28, Continental Oil Co. met in Okla., Kans., and North Texas. Sinclair-Prairie met in North Texas and North Central Texas, Jan. 28, Stanolind's North Texas schedule. Same date, The Texas Co. met in North-North Central Texas.

Note: Stanolind prices in Okla.-Kans. are for quantities computed by 97% tank tables. In Texas, 100% tank tables are used effective Oct. 1, 1937, volume corrected to 60° F., and deduction for full b.s. & w. content.

*Effective Aug. 1, 1937, for Otis-Albert pools Rush-Barton counties, Kans., 13c less.

Posted by Carter Oil Co.

In Oklahoma

(Effective Jan. 28, 1937)

Below 25	$0.98	33-33.9	$1.16
25-25.9	1.00	34-34.9	1.18
26-26.9	1.02	35-35.9	1.20
27-27.9	1.04	36-36.9	1.22
28-28.9	1.06	37-37.9	1.24
29-29.9	1.08	38-38.9	1.26
30-30.9	1.10	39-39.9	1.28
31-31.9	1.12	40 and above	1.30
32-32.9	1.14		

Above Carter schedule met Jan. 28 by the following companies: Sinclair-Prairie, Shell and Bransdall in Oklahoma-Kansas; Skelly Oil in Kansas; Tide Water in Oklahoma; Pure Oil in Oklahoma-Kansas, beginning with below 24 at $0.98 and ending with 40 & above at $1.30.

Posted by Magnolia Petroleum Co.

(Effective Jan. 28, 1937)

In Oklahoma, same schedule as Carter Oil, which see above, beginning with below 25, at $0.98 and ending with 40 & above, at $1.30.

In Texas: North and North Central, including Burkburnett, Archer, Henrietta, Electra, Comanche and Olden, same gravity and price schedule as Stanolind in North Texas, which see under Stanolind, beginning with below 29 at $0.96 and ending with 40 and above, at $1.20.

Beaumont, Tex.

(Effective Oct. 1, 1937)

Below 21°	$0.95	27-27.9	$1.15
21-21.9	0.98	28-28.9	1.17
22-22.9	1.01	29-29.9	1.19
23-23.9	1.04	30-30.9	1.21
24-24.9	1.07	31-31.9	1.23
25-25.9	1.10	32-32.9	1.25
26-26.9	1.13	33-33.9	1.27
		34 & above	1.29

TEXAS FIELDS

Posted by Humble Oil & Refining Co.

(**West Central Texas*)

(Effective Jan. 28, 1937)

Below 29	$0.96	35-35.9	$1.10
29-29.9	0.98	36-36.9	1.12
30-30.9	1.00	37-37.9	1.14
31-31.9	1.02	38-38.9	1.16
32-32.9	1.04	39-39.9	1.18
33-33.9	1.06	40 and above	1.20
34-34.9	1.08		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young counties.

Shell Petroleum Corp., effective Jan. 28, posts Humble's above schedule on Fisher county crude, plus these five lower grades, beginning with below 25 gravity at $0.88; 25-25.9, $0.90; 26-26.9, $0.92; 27-27.9, $0.94, and 28-28.9, $0.96; rest of schedule same as Humble's in West Central Texas.

Note: Effective Oct. 1, 1937, Humble prices are based on 100% tank tables at 60F.

**East Central Texas*

(Effective Jan. 28, 1937)

Below 29	$1.03	35-35.9	$1.17
29-29.9	1.05	36-36.9	1.19
30-30.9	1.07	37-37.9	1.21
31-31.9	1.09	38-38.9	1.23
32-32.9	1.11	39-39.9	1.25
33-33.9	1.13	40 and above	1.27
34-34.9	1.15		

*Including Anderson, Cherokee, Limestone, Navarro counties.

Same date, Sinclair-Prairie met in Mexia Humble's above schedule.

PANHANDLE TEXAS

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

	Gray County	Carson-Hutchinson
Below 35	$0.96	$0.91
35-35.9	0.98	0.93
36-36.9	1.00	0.95
37-37.9	1.02	0.97
38-38.9	1.04	0.99
39-39.9	1.06	1.01
40 & above	1.08	1.03

Jan. 28, above prices met by Sinclair-Prairie and Magnolia in the entire area and by Continental in Carson-Hutchinson and by Texas Co. in Panhandle Sweet, same as Humble's Gray Co. and on Panhandle Sour, same as Carson-Hutchinson.

EAST TEXAS

(Effective May 22, 1937)

Stanolind, Humble, Shell, Sinclair-Prairie, Texas Co., and Magnolia.....$1.35

Shell also posted on Jan. 28, in Livingston area, Polk County, Texas, $1.27.

NORTHEAST TEXAS

(Posted by Humble, Jan. 28, 1937)

Talco.....$0.73

(Posted by Magnolia, Jan. 28, 1937)

Cass County and Panola County, Tex.:

Same gravity and price schedule as S. O. Louisiana posts for Rodessa, La., which see under that company.

(Posted by The Texas Co., Jan. 28, 1937)

Cass County.....$1.25

WEST TEXAS AND NEW MEXICO

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

(Including Andrews, Crane, Crockett, Ector, Glasscock, Howard, Winkler and Upton Counties, Texas and Lea county, New Mexico).

Below 26	$0.78	33-33.9	$0.94
26-26.9	0.80	34-34.9	0.96
27-27.9	0.82	35-35.9	0.98
28-28.9	0.84	36-36.9	1.00
29-29.9	0.86	37-37.9	1.02
30-30.9	0.88	38-38.9	1.04
31-31.9	0.90	39-39.9	1.06
32-32.9	0.92	40 & above	1.08

Pecos, West Texas.....$0.91

Jan. 28, Magnolia met Humble in Crane, Upton, Howard, Glasscock, Mitchell and Winkler.

Shell Petroleum Corp., on Jan. 28, met Humble in Crane, Glasscock, Howard, Pecos (except Yates shallow pool), Winkler, and Upton counties, Tex., and in Lea County, N. Mex. On Jan. 28, Shell posted in Yates shallow pool in Pecos county, Tex., $0.81. June 4, 1937, Shell added Ector county to West Texas postings.

Jan. 28, Stanolind Oil & Gas Co. met Humble in Hendrick field, Winkler county.

Jan. 28, Texas Co. met Humble in Ward and Winkler counties, Tex., and Lea County, N. M.

April 20, 1937, Sinclair Prairie met Humble in Ward and Winkler, Tex. and Lea, N. M., counties, except that its gravity schedule ends with 36 and above, at $1.00.

Posted by Continental Oil Co.

(Effective Jan. 28, 1937)

Artesia, Jackson and Maljamar pools, N. M...$0.90

COLORADO

(Posted by Continental Oil Co.,
Effective Jan. 28, 1937)
Ft. Collins and Wellington

Below 29	$1.01	35-35.9	$1.15
29-29.9	1.03	36-36.9	1.17
30-30.9	1.05	37-37.9	1.19
31-31.9	1.07	38-38.9	1.21
32-32.9	1.09	39-39.9	1.23
33-33.9	1.11	40 & above	1.25
34-34.9	1.13		

Cannon City and Florence, Col.....$1.10

SOUTH AND SOUTHWEST TEXAS

Posted by Humble Oil & Refining Co.
All Shown Below

(Effective Jan. 28, 1937)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski fields.....$1.09
Pettus.....$1.37 Van Zandt.....$1.10

Jan. 28, Magnolia met Humble in Darst Creek: posted $1.00 in Luling; $1.12 in Lytton Springs; $1.27 for Cleveland, Liberty county, Tex.; $1.15 in Hardin, Liberty county, Tex.

Jan. 28, 1937, The Texas Co. met Humble in Darst Creek.

Anahuac, Dickinson, Flour Bluff and Turtlebay

(Effective Jan. 28, 1937)

Below 31	$1.16	36-36.9	$1.28
31-31.9	1.18	37-37.9	1.30
32-32.9	1.20	38-38.9	1.32
33-33.9	1.22	39-39.9	1.34
34-34.9	1.24	40 and above	1.36
35-35.9	1.26		

Conroe, Raccoon Bend (Deep sand crude) Tomball and Satsuma

(Effective Jan. 28, 1937)

Below 29	$1.20	35-35.9	$1.34
29-29.9	1.22	36-36.9	1.36
30-30.9	1.24	37-37.9	1.38
31-31.9	1.26	38-38.9	1.40
32-32.9	1.28	39-39.9	1.42
33-33.9	1.30	40 & above	1.44
34-34.9	1.32		

Jan. 28, Magnolia met Humble in Tomball and Texas Co. met Humble in Conroe, beginning with 35-35.9 gravity.

(*Continued on next page*)

CRUDE OIL MARKETS

(Continued from preceding page)

South-Southwest Texas (cont'd)

Posted by Humble

**Mirando*

(Effective July 6, 1937)

Below 21	$0.96	31-31.9	$1.18
21-21.9	0.98	32-32.9	1.20
22-22.9	1.00	33-33.9	1.22
23-23.9	1.02	34-34.9	1.24
24-24.9	1.04	35-35.9	1.26
25-25.9	1.06	36-36.9	1.28
26-26.9	1.08	37-37.9	1.30
27-27.9	1.10	38-38.9	1.32
28-28.9	1.12	39-39.9	1.34
29-29.9	1.14	40 & above	1.36
30-30.9	1.16		

*Includes Duval, Jim Hogg, Webb and Zapata counties, Tex. and Heyser and Placedo crudes.

July 6, Magnolia posted same schedule as Humble in Mirando.

July 6, 1937, Texas Co. posted for Duval-Mirando, $0.96 for below 21, plus 2c differential, to $1.12 for 28 & above.

LOUISIANA-ARKANSAS

Posted by Standard Oil Co. of Louisiana

	*N. La.-Ark.	Rodessa, La.	So. La. Roanoke N. Crowley
	(Effective Jan. 28, 1937)		(Dec. 28,'37)
Below 21°	$0.90	$0.93	$0.90
21-21.9	for	for	.93
22-22.9	oil	oil	.96
23-23.9	Below	Below	.99
24-24.9	25°.	25°.	1.02
25-25.9	$0.92	$0.95	1.05
26-26.9	.94	.97	1.08
27-27.9	.96	.99	1.10
28-28.9	.98	1.01	1.12
29-29.9	1.00	1.03	1.14
30-30.9	1.02	1.05	1.16
31-31.9	1.04	1.07	1.18
32-32.9	1.06	1.09	1.20
33-33.9	1.08	1.11	1.22
34-34.9	1.10	1.13	1.24
35-35.9	1.12	1.15	1.26
36-36.9	1.14	1.17	1.28
37-37.9	1.16	1.19	1.30
38-38.9	1.18	1.21	1.32
39-39.9	1.20	1.23	1.34
40 & above	1.22	1.25	1.36

*Includes Caddo, Homer, Haynesville, Sabine, De Soto, Sarepta, Carterville, El Dorado, Bunkie and Miller county.

Smackover, Ark. $0.90

Urania, La. (Arkansas Fuel Oil Co., Jan. 28, '37) $1.02

Tepetate, La. (Continental Oil, Jan. 28, '37) ... 1.24

Jan. 28, 1937, Magnolia met S. O. La.'s No. La.-Ark. gravity and price schedule in Pine Island, Haynesville, Bull Bayou and Cotton Valley, La., and in Eldorado and Rainbow districts, Ark.; and met S. O. La.'s Rodessa prices; and in Lockport, Iowa, Cameron Meadow, La., posted Humble's gravity and price schedule on Mirando. El Dorado East Field, Ark. price same as Smackover, effective Jan. 28, '37.

Jan. 28, The Texas Co. met S. O. La. in N. La., except that its gravity schedule begins with below 27 at $0.94. It posted $1.37 for Garden Island, La., $1.24 for LaFitte, La. and $0.90 for Smackover.

***GULF COASTAL FIELDS**

Posted by Humble Oil & Refining Co. and The Texas Co.

	Humble	Texas	Saxet (Humble) (July 6 '37)
	(Effective Jan. 28, 1937)		
Below 18	$0.95	$0.90	....
18-18.9	for	0.92	....
19-19.9	below	0.94	....
20-20.9	21°	0.96	$1.01
21-21.9	0.98	0.98	1.03
22-22.9	1.01	1.01	1.05
23-23.9	1.04	1.04	1.07
24-24.9	1.07	1.07	1.09
25-25.9	1.10	1.10	1.11
26-26.9	1.13	1.13	1.13
27-27.9	1.15	1.15	1.15
28-28.9	1.17	1.17	1.17
29-29.9	1.19	1.19	1.19
30-30.9	1.21	1.21	1.21
31-31.9	1.23	1.23	1.23
32-32.9	1.25	1.25	1.25
33-33.9	1.27	1.27	1.27
34-34.9	1.29	1.29	1.29
35-35.9	1.31	for	1.31
36-36.9	1.33	oil	1.33
37-37.9	1.35	34°	1.35
38-38.9	1.37	and	1.37
39-39.9	1.39	above.	1.39
40 and above	1.41	....	1.41

†Refugio

(Effective July 6, 1937)

Posted by Humble

20-20.9	$1.01	23-23.9	$1.07
21-21.9	1.03	24-24.9	1.09
22-22.9	1.05	25-25.9	1.11

Rest of schedule same as Humble's Gulf Coastal crude prices.

†Includes Saxet, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor crude.

*Humble's prices apply in these Texas fields: Amelia, Barbers Hill, Goose Creek, Hull, Liberty, Mykawa, Orange, Pierce Junction, Raccoon Bend, (shallow sand), Sugarland, Thompsons, and West Columbia.

Jan. 28, Sinclair-Prairie met above Humble schedule in full.

July 6, 1937, The Texas Co. posted for Refugio, which includes Greta, Saxet and Taft: $1.01 for below 21, plus 2c differential, to $1.17 for 28 & above.

Texas Co. postings in Gulf Coastal Texas include: Arriola, Five Corners, Ganado, Humble, Liberty, Magnet, Manvel, Markham, Mauritz, McFaddin, Pickett Ridge, Port Neches, Sour Lake, West Columbia and Withers. In Gulf Coastal Louisiana: Bay St. Elaine, Caillou Island, Dog Lake, Four Isle, Gillis, Horseshoe Bayou, Iberia, Lake Barre, Lake Pelto, Leesville and Port Barre.

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co.

(Effective Jan. 28, 1937)

Salt Creek, (except Tensleep crude), Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma, Kansas which see under Mid-Continent crude on previous page.

(Effective Jan. 6, 1938)

Tensleep, Salt Creek field $0.70

(Effective Jan. 28, 1937)

Greybull-Torchlight	$1.30
Iles, light, Col.	1.18
Iles, heavy	1.12
Hogback, N. M.	1.33
Big Muddy	1.23
Elk Basin, light	1.30
Grass Creek, light	1.30
Frannie light	0.82

(Effective Nov. 4, 1936)

Grass Creek, heavy	$0.62
Frannie heavy	0.62
Hamilton Dome, Wyo.	0.57

Posted by Ohio Oil Co.

(Effective Jan. 28, 1937)

Elk Basin, Wyo.	$1.30
Grass Creek, light	1.30
Rock Creek	1.205
Lance Creek	0.97

(Effective Nov. 16, 1937)

Sunburst, Mont. $0.90

Posted by Continental Oil Co.

(Effective Jan. 1, 1938)

Cat Creek, Mont. $1.30

(Effective Jan. 28, 1937)

Big Muddy, Wyo.	1.18
Lance Creek, Wyo.	0.97

CALIFORNIA, *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 26, 1936, except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936; Elk Hills effective June 22, 1936; Lakeview Area, Aug. 19, 1936; El Segundo and Wilmington, Oct. 15, 1937; Greeley-Canal, Dec. 22, 1937.

Gravity	Signal Hill (Long Beach) El Segundo †Wilmington	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda Brea Canon	Athens Rosecrans	Dominguez	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	‡Newhall and others	Mountain View	Elk Hills	Buena Vista Hills Midway-Sunset Lakeview Area	Greeley-Canal (Kern County)	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$0.80	0.79	0.74	0.78	0.79	0.80	0.76	....	....	0.80	0.76	0.76	0.77	0.78	....	0.70	....	0.70	0.70	.....	0.70	0.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.....	.70	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.....	.70	.70	....
17-77.9	.80	.79	.74	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.....	.70	.70	....
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	....	.70	....	.70	.70	.....	.70	.70	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	....	.70	.70	.74	.74	.....	.74	.71	.70
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	....	....	.70	.78	.78	.....	.78	.72	.70
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	....	.73	.82	.82	.....	.82	.74	.70
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	....	.77	.87	.87	.....	.86	.78	.72
23-23.9	.95	.86	.77	.96	.99	1.02	.96	.84	.79	.96	.88	.93	.82	.92	.78	....	.80	.92	.92	.....	.90	.82	.76
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	.99	.91	.96	.85	.96	.82	....	.84	.97	.97	.....	.94	.86	.79
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	1.02	.95	....	.89	.99	.86	....	.88	1.01	1.01	.....	.98	.90	.83
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	1.05	.98	....	.92	1.03	.90	....	.91	1.06	1.06	.....	1.02	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	.96	1.06	.95	....	.95	1.10	1.10	$0.84	1.06	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	1.06	....	.99	1.10	.99	....	.99	1.15	1.15	.88	1.10	....	....
29-29.9	1.17	1.15	.93	1.18	1.18		1.17	1.12	.93	....	1.09	....	1.03	1.14	1.03	....	1.02	1.20	1.20	.92	1.14	....	....
30-30.9	1.21	1.19	.95	1.22	1.21		1.21	1.17	.95	....	....	....	1.07	1.17	1.08	....	1.06	1.25	1.25	.95	1.18	....	....
31-31.9				....	1.24		1.24	1.22	.97	....	....	....	1.11	1.21	1.12	....	1.09	1.29	1.29	.99			
32-32.9		*Elwood Terrace		....	1.27		1.27	1.27	1.00	....	....	....	1.14	1.25	1.16	....	1.13	1.34	1.34	1.03	Kettleman Hills		
33-33.9	....	1.28	....	....	....		....	1.32	....	....	....	....	1.18	1.28	1.20	....	1.17	1.38	1.38	1.07	....	1.19	....
34-34.9	....	1.32	....	....	....		....	1.37	....	....	....	....	1.22	1.32	1.25	....	1.20	....	....	1.11	....	1.23	....
35-35.9	....	1.35	....	....	....		....	1.42	....	....	....	....	1.25	....	1.29	....	....	....	....	1.15	....	1.27	....
36-36.9	....	1.39	....	....	....		....	1.46	....	....	....	....	1.29	....	1.33	....	....	....	....	1.19	....	1.31	....
37-37.9	....	1.43	....	....	....		....	1.51	....	....	....	....	1.32	....	1.37	....	....	....	....	1.23	....	1.35	....
38-38.9	....	....	....	....	....		....	1.56	....	....	....	....	1.36	....	1.42	....	....	....	....	1.27	....	1.39	....
39-39.9	....	....	....	....	....		....	1.61	....	....	....	....	1.40	....	....	....	....	....	....	1.31	....	1.43	....
40-40.9	....	....	....	....	....		....	1.66	....	....	....	....	1.43	....	....	....	....	....	....	1.34	....	....	....
41-41.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.38	....	....	....
42-42.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.41	....	....	....
43-43.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.45	....	....	....
44-44.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.49	....	....	....
45-45.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.53	....	....	....
46-46.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.56	....	....	....
47-47.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.60	....	....	....
48-48.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.64	....	....	....

F. O. B. Standard Pipe Line

*F. o. b. ship.

‡Also McKittrick, Kern River. Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted.

†Wilmington prices differ on gravities below 18.9. Prices are: 14-16.9, $0.75; 17-17.9, $0.77; and 18-18.9, $0.79; rest of schedule same as Signal Hill.

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Coming Meetings

Kentucky Petroleum Marketers Assn., Brown Hotel, Louisville, Ky., Feb. 7, 8 and 9.

Missouri Independent Oil Jobbers Assn., Hotel Baltimore, Kansas City, Mo., Feb. 9, 10.

Kansas Oil Men's Assn., 24th annual convention and oil exposition, Hotel Broadview, Wichita, Kans., Feb. 14 and 15.

American Institute of Mining and Metallurgical Engineers, annual meeting, Engineering Societies Bldg., New York, N. Y., Feb. 14 to 18.

Illinois Petroleum Marketers Assn., Pere Marquette Hotel, Peoria, Ill., Feb. 16 and 17.

Association of Highway Officials of the North Atlantic States, Hotel Ambassador, Atlantic City, N. J., Feb. 16, 17 and 18.

American Petroleum Institute, Division of Production, Mid-Continent District, Herring Hotel, Amarillo, Tex., Feb. 17 and 18.

Ohio Petroleum Marketers Assn., fifteenth annual meeting, Hotel Deshler-Wallick, Columbus, Ohio, Feb. 22, 23 and 24.

Wisconsin Petroleum Assn., Schroeder Hotel, Milwaukee, Wis., Feb. 22, 23 and 24.

Indiana Independent Petroleum Assn., Spring Convention and Refiners and Suppliers Exhibit, Hotel Severn, Indianapolis, Ind., March 2, 3 and 4.

Iowa Independent Oil Jobbers Assn., and trade exhibit, Fort Des Moines Hotel, Des Moines, Iowa, March 2, 3 and 4.

American Society for Testing Materials, Spring Regional Meetings and Group Committee Meetings, Seneca Hotel, Rochester, N. Y., March 7 to 12.

Society of Automotive Engineers, National Aeronautic Meeting, Mayflower Hotel, Washington, D. C., March 10 and 11.

American Assn. of Petroleum Geologists, 23rd annual meeting, Roosevelt Hotel, New Orleans, La., March 16 to 18.

Western Metal Congress and Exposition, Biltmore Hotel, Los Angeles, Calif., March 21 to 25. (Petroleum Division has sessions.)

American Society of Mechanical Engineers, Los Angeles, Calif., March 23, 24 and 25.

American Petroleum Institute, division of production, spring meeting, southwestern district, Blackstone Hotel, Fort Worth, Texas, March 24 and 25.

Society of Automotive Engineers, National Passenger Car Meeting, Hotel Statler, Detroit, Mich., March 28, 29 and 30.

Independent Oil Men's Assn. of New England, annual convention, Bradford Hotel, Boston, Mass., April 7.

National Petroleum Assn., Cleveland, Ohio, April 13 to 15.

Petroleum Industry Electrical Assn., Rice Hotel, Houston, Texas, April 13, 14 and 15.

American Chemical Society, Dallas, Texas, April 17 to 21.

American Petroleum Institute, division of production, Pacific Coast district, spring meetings, Biltmore Hotel, Los Angeles, Calif., April 19.

American Institute of Mining and Metallurgical Engineers, Open Hearth Conference, Buffalo, N. Y., April 20, 21 and 22.

Western Petroleum Refiners Assn., 26th annual meeting, Hotel Arlington, Hot Springs, Ark., April 25, 26 and 27.

Natural Gasoline Assn. of America, 17th annual convention, Hotel Tulsa, Tulsa, May 11 to 13.

National Oil Scouts Assn. of America, Tulsa, Okla., May 12, 13 and 14.

International Petroleum Exposition, Tulsa, Okla., May 14 and 21.

American Petroleum Institute, mid-year meeting, Allis and Lassen Hotels, Wichita, Kans., May 23, 24 and 25.

Society of Automotive Engineers, summer meeting, The Greenbrier, White Sulphur Springs, W. Va., June 12 to 17.

Pennsylvania Grade Crude Oil Assn., William Penn Hotel, Pittsburgh, Pa., June 16, 17 and 18.

American Society of Mechanical Engineers, St. Louis, Mo., June 20 to 24.

National Industrial Advertisers Assn., Inc., 16th annual meeting, Cleveland, Ohio, Sept. 21, 22 and 23.